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VOCATIONAL EDUCATION IN MICHIGAN, THE FINAL REPORT OF THE MICHIGAN VOCATIONAL EDUCATION EVALUATION PROJECT.

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ACCOMPLISHMENTS OF THE MICHIGAN VOCATIONAL EDUCATION EVALUATION PROJECT DURING ITS 4-YEAR PERIOD OF OPERATION ARE PRESENTED IN ABBREVIATED FORM. THE PURPOSES OF THE EVALUATIVE STUDY WERE (1) TO DISCOVER THE STRENGTHS AND WEAKNESSES OF THE PRESENT PROGRAM OF VOCATIONAL EDUCATION AND (2) TO PROVIDE INFORMATION WHICH WOULD PROPERLY SHAPE THE DIRECTION OF THE PROGRAM BOTH NOW AND IN THE FUTURE. THE SEVEN CHAPTERS PROVIDE (1) AN OVERVIEW OF THE GROWTH AND DEVELOPMENT OF VOCATIONAL EDUCATION IN MICHIGAN, (2) A STATEMENT OF POSITION REGARDING THE PHILOSOPHY AND OBJECTIVES OF VOCATIONAL EDUCATION AS DEVELOPED BY A GROUP OF VOCATIONAL LEADERS AND CONSULTANTS, (3) A SURVEY OF EXISTING VOCATIONAL CURRICULUMS IN RELATION TO SOME ASPECTS OF THE LABOR FORCE IN MICHIGAN, (4) A DESCRIPTION OF THE ADMINISTRATION, ORGANIZATION, AND SUPERVISION OF VOCATIONAL EDUCATION, (5) A SUMMARY OF VOCATIONAL TEACHER EDUCATION PROGRAMS IN MICHIGAN, (6) A DESCRIPTION OF THE CHARACTER OF RESEARCH CONDUCTED IN VOCATIONAL EDUCATION, AND (7) RECOMMENDATIONS AND SUGGESTED GUIDELINES FOR FUTURE IMPROVEMENTS. THE APPENDIXES INCLUDE TABULAR DATA FOR (1) OCCUPATIONS OF EMPLOYED PERSONS, BY SEX, FOR MICHIGAN COUNTIES IN 1940, 1950, AND 1960, (2) CIVILIAN LABOR CHANGE IN MICHIGAN, 1950-60, (3) STUDENTS ENROLLED IN VOCATIONAL COURSES, AND (4) EDUCATIONAL BACKGROUND OF TEACHERS BY COURSE AND GRADE LEVEL OF SUBJECTS. (PS)

VOCATIONAL EDUCATION IN MICHIGAN

The Final Report of the Michigan Vocational Evaluation Project 1963

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Studies Conducted by the
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Evaluation of Business Teacher Education Programs, F. Lanham, University of Michigan, July 1963.

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Area Vocational Schools, L. Alger, Department of Public Instruction, in process.

Identification of the Role of the Practical Nurse as Part of the Nursing Team and Curriculum Required to Train for this Role, M. Hill and H. Dillon, Michigan State University, in process.

Follow-up Study of Graduates of Lansing Public and Parochial Schools, K. Bournazos, Michigan State University, in process.

Preface

Accomplishments of the Michigan Vocational Education Evaluation Project during its four year period of operation are presented in abbreviated form in this report published for the State Board of Control for Vocational Education. It is intended as a brief description of what has been done and the continuative work in progress. A more detailed treatment of specific sub-researches is delineated in supportive documents which number twenty-five as of this writing.

Of paramount importance in any report of the Michigan Vocational Education Evaluation Project is recognition of the wisdom and foresight of the State Board of Control for Vocational Education. Without its initial financial backing plus a supplementary funding amounting to commitments of $85,000, such a far-reaching undertaking would not have been possible. This overt act coupled with provision for maximum flexibility in the use of funds permitted abundant opportunity for creativity and latitude in translating dollars into action.

MVEEP has been an inter-university cooperative effort. One of the heart-warming aspects has been the enthusiastic manner in which institutions of higher education and the Department of Public Instruction have entered and suffered through the various activities. The various institutions contributed personnel and services that have augmented the basic financial grant. Functioning as key people in shaping and energizing the entire effort of MVEEP have been the members of the Executive Committee both as individuals and collectively.

The Michigan Vocational Education Evaluation Project is without parallel or precedent in the history of vocational education in Michigan, or for that matter, in the United States. Although vocational education surveys have been conducted in other states, no study has been discovered comparable to MVEEP. Obviously, a report of this limited scope fails to capture and catalogue the manifold by-products that occur within people and a social system as a result of cooperative interaction. Furthermore, it is impossible to summarize some fifteen hundred pages into this final report without losing some of the emphasis and continuity which make up the specific researches. Tangible evidence is already available attesting to the fact that the Project has had an impact and that its influence will be felt because of the built-in dynamics in the on-going program of vocational education.

The present study was not intended to be comprehensive nor exhaustive. Additional areas of study in the Michigan program of vocational education are plentiful. Research investigators, stimulated by funds resulting in part from recommendations in this study, are already continuing to conduct studies which will shed added light on some anxious and perplexing questions.

It would take much space to list the names of persons who have given of themselves to bring this study to completion. We take this opportunity to express our appreciation and thanks to all of them. However, without the assistance of the Project Directors identified previously the study would not have come to fruition. A special thanks is given to the coordinators of special projects: P. Haines, G. Timmons, B. O'Donnell, and W. Bateson. We also are grateful for the research assistance provided by M. Larson, R. Poland, K. Bournazos, and R. Shupe. Finally, to Miss Suzanne Durell we owe a gift of gratitude for her patient and persistent technical assistance.

Lawrence Borosage, Director

FOREWORD

The State Board of Control for Vocational Education on September 16, 1958, authorized the initiation of a comprehensive evaluation study which would assist in determining the direction of the Michigan program of vocational education in the immediate future, as well as the years beyond. The following is the text of the Charter that was acted upon by the State Board.

1. The coming of automation, the "jet age," the era of space exploration, and the peaceful and productive uses of the energy of the atom have opened up vast new areas of opportunity for a wide variety of skilled technicians. It has been estimated that at the present time - and for the forseeable future - there will be a demand for a score or more of trained technicians for each college-trained engineer and scientist. To say that we are living in an increasingly emphatic age of applied sciences is to make an obvious observation - to say less would be to make a gross understatement.

   The role of vocational education in the training of needed technicians is well-known; how well the program of vocational education in Michigan is prepared to meet its responsibility in this connection is less well-known. The extent and types of training for which a national program of vocational education was initiated in 1917 may be notably dissimilar from those needed in 1958 and those anticipated in the years ahead. If the vocational education program in Michigan is to serve best the needs of our youth and adults, it is fitting that a reasonable portion of our energies and resources be devoted to a careful study of its purposes, achievements, limitations, and desirable future, nature, and direction. If we have a sincere interest in the welfare of Michigan youth and adults who will need some kind of vocational education, we can do no other.

2. Within the memory of the members of the staff of the Division of Vocational Education the Michigan program of vocational education has never undergone a thorough evaluation, either for the purpose of providing valid bases for making evaluative judgments about the program in operation or for planning an improved program for the days ahead. Such an evaluation project should include a study of local programs, vocational teacher education, state administration, and guidance and counseling services, which underpin any adequate program of vocational education.

Purposes of the Study

The purposes ascribed to the evaluative study were set down in the original Charter and included:

a. To discover the strengths and weaknesses of the present program of vocational education in terms of the needs of individuals, local communities, and of society.

b. To provide information which would properly shape the direction of the program in the immediate future and in the years beyond.

c. To evaluate separate aspects of the program in light of a steadily changing world of work.

d. To point up aspects of the program which should be pointedly emphasized based upon the needs of the people in Michigan and of our occupational society.

e. To distinguish more sharply the role of the state office consultant staff in the Michigan program of vocational education.

f. To ascertain more precisely the role of vocational education in Michigan's whole program of education.

g. Such other purposes as may emerge from their present state of obscurity into the line of vision of those involved in the evaluation project.

General Design of the Project

The following three guide-lines served as a basic undergirding during the initiatory phase of the study:

a. Contract with one of the Michigan teacher education institutions now designated by the Michigan State Board of Control for Vocational Education as a vocational teacher education institution to carry the major work load generated by the Project.

b. Employ a competent professional person to have general direction of the study.

c. Contract for the services of other Michigan teacher education institutions and/or possibly such out-of-state agencies as the Advisory Committee may deem desirable.

Selection of Coordinating Institution and Director of the Study

In accordance with the above charter, the State Superintendent of Public Instruction called a meeting of administrative heads responsible for vocational education in the various institutions of higher education. At this meeting the decision was made that the College of Education at Michigan State University should assume the responsibility for coordinating and directing the study. This determination was based upon the fact that Michigan State University had the singular organizational feature of having all vocational teacher education services in agriculture, business, counselor training, home economics and industrial education in one college. Such an arrangement, it was believed, would enable communication and coordination across the fields. Shortly after this meeting a staff member of the faculty in the College of Education was appointed Study Director.

Appointment of the Executive Committee

Subsequent to the appointment of the Study Director, an Executive Committee was appointed. Committee composition included the Assistant Superintendent for Vocational Education, Department of Public Instruction; Assistant Dean, Curriculum and Program, College of Education, Michigan State University; Assistant Dean, Research and Publication, College of Education, Michigan State University; a representative of the State Board of Control for Vocational Education and the Study Director. This nucleus was later augmented to include four project directors, a representative from Wayne State University, and the Research Consultant from the Division of Vocational Education in the Department of Public Instruction.

The chief responsibilities of the Executive Committee were:

a. To establish a plan of organization providing for the conduct of a comprehensive study under its direction.

b. To steer the general direction of the study.

c. To determine the policies related to the study, and define responsibilities of various individuals and groups.

d. To approve the design of the study.

e. To approve the allocation of sub-researches to the various institutions of higher education.

f. To approve major allocations of monies to contracting institutions.

g. To assess progress of the study toward the achievement of designated purposes.

h. To approve reports prior to dissemination.

The Advisory Committee

An advisory committee composed of representatives from management, labor, agriculture, business, and education was appointed jointly by the Dean of the College of Education and the State Superintendent of Public Instruction. The primary task of the Advisory Committee was to identify some areas of emphasis which should be considered in the framework of the study. The Advisory Committee met in a one-day session and addressed itself to the following question:

> Given the responsibility for the research study of the Michigan Program of Vocational Education, what areas should be evaluated?

The committee summarized its deliberations by suggesting that the following fifteen concerns be given attention in the study:

1. Since misunderstanding seems to attend the role of vocational education in the program of public education in Michigan, a statement of beliefs regarding the relationships between vocational and general education should be developed. This would enable educators and lay groups to have a base from which to communicate more effectively. It would also serve as a point of departure for determination of educational objectives.

2. It was generally agreed that any evaluative study must be rooted in educational objectives. It would seem appropriate to review the objectives of vocational education in terms of the changing socio-economic scene. The evaluation should be concerned with objectives that reflect "what should be done" rather than concern with "what is."

3. Review adult vocational education needs, particularly those dealing with the problem of retraining because of automation and other factors contributing to dislocation in various segments of the work force.

4. Examine the role of guidance as a purpose of vocational education itself rather than a means to an end. For some individuals the program of vocational education may serve as a finding period rather than one dealing with preparation for employment in a specific occupation.

5. Determine the extent of adequate linkage between the schools and community groups in the organization and execution of vocational education programs. Are advisory committees a reality? Are they establishing the liaison necessary for the best possible vocational education plans of instruction?

6. Provide more basic information about the vocational education program to the advisory committee members in order that an image of our present program be identified.

7. To what extent can educational television be a force in vocational education? It would appear that some areas of instruction could be served by this medium.

8. Studies made by the Conference of Large City Superintendents should be reviewed for clues regarding problem areas in vocational education in the large city. Some of the research accomplished by the U. S. Office of Education might prove valuable.

9. With the constant decrease in dollars available for programs of vocational education, it may be well to examine alternative plans for expenditure of funds.

10. Since the Department of Public Instruction is a potent force in determining educational direction, it was suggested that a statement of beliefs prepared by each individual in the Department of Public Instruction concerned with vocational education might serve to get a "feel" of current thought.

11. Vocational education should be thought of in the broadest sense rather than that type of vocational education characterized by Federal-State subvention.

12. Determine the extent to which enrollment in vocational education courses precludes entrance into college. The student should not be jeopardized because of the way in which the program is organized.

13. According to labor forecasts women will increasingly be needed in the labor force. Do guidance workers recognize this fact and what planning is underway to provide additional training opportunities for women?

14. Examine the role of public education in offering a program of vocational education, i.e., where does public education stop in fulfilling its responsibility?

15. Determine the justification for programs of vocational education to serve as a motivational vehicle per se. This implies that the nature of the activity has inherent values over and beyond development of occupational competency.

Development of the Study Design

Three ingredients entered into the construction of the study design: (a) the basic charter as submitted to the State Board of Control for Vocational Education; (b) the recommendations of the advisory committee; and (c) review of other evaluative studies to discover applicable models. From

these three sources it was decided to carry on research in the following major areas:

1. Study and investigation leading to the preparation of a statement of philosophy and objectives.

2. Study and investigation leading toward an understanding of vocational curricula in Michigan public schools.

3. Study and investigation of the organization, adminstration and supervision of vocational education.

4. Study and investigation of the vocational teacher education program.

5. Study and investigation of current practices as related to the four areas above.

A seventeen-page document was prepared, entitled "Project Information and Design," which included the following major considerations:

a. Philosophy Undergirding the Study

b. Guiding Principles

c. General Approach to the Study

d. Areas to be Investigated

e. Proposed Implementation

f. Organizational Structure

The following provisions were inherent in this basic framework:

1. Any research conducted shall fall within the intent and spirit of the over-all evaluation study.

2. Development of preliminary plans by each institution for conducting its work. This included:

   a. Drafting a proposal or outline of the studies to be carried out as part of the assignment.

   b. Developing a tentative schedule for collection of data.

3. Presentation of the preliminary plans for review by the Executive Committee.

4. Preparation of periodic progress reports, both oral and written, to the Executive Committee.

5. Submission of a draft of the report for review by the Executive Committee.

6. Revision of the draft of the report to include findings and recommendations for inclusion in the official report of the study.

The Design Review Conference

After the design for the project had been approved by the Executive Committee, it was deemed advisable to hold a one-day review conference. Invitations were extended to all vocational teacher educators from institutions of higher education and consultants from the Department of Public Instruction. In addition, special consultants in educational philosophy, curriculum, and administration were invited. A total of 67 people attended. The basic purpose of the conference was three-fold:

a. To review the proposed research design and to solicit reactions from those who were in leadership positions.

b. To make the leadership aware of developments in the study.

c. To enable institutions to think about the phases of the study in which they wished to participate.

As a result of this conference a substantial number of suggestions were submitted and incorporated into the final research design.

Research Centers Selected and Established

After the final acceptance and approval of the study design by the Executive Committee, the next task was to allocate responsibilities to the various institutions of higher education in conformity with the basic charter. Administrative heads met to decide on a plan for division of labor. It was not the intent of the Executive Committee nor the Project Office to impose research assignments on each of the institutions arbitrarily, but rather to operate in a climate of free choice. First of all, each of the institutions were free to decide whether or not it wished to participate. If the answer was affirmative, then freedom of election of any of the major task force areas would be made based upon the institution's interest and security. Fortunately, the final elections squared with institutional preference and as a result commitments were made, assignments accepted, and project directors identified. Table 1 lists the participating institutions together with assignments.

Table 1

Task Force Assignments

Task Force	Institution	Project Director
Philosophy and Objectives	Michigan State University	H. Byram
Organization, Administration, and Supervision	University of Michigan	R. Wenrich
Curriculum	Michigan State University	S. Nosow
Teacher Education	Western Michigan University	G. Kohrman A. Trimpe
Historical and Current Practice	Department of Public Instruction	L. Alger

In order to encourage maximum creativity, no operational pattern within the task force assignments was prescribed for implementation of institutional responsibility. Diverse approaches were encouraged and participating institutions were given a broad framework within which to operate. In each task force the method of attack was different. As specific studies were undertaken, plans were reshaped and redirected as developing activities and new insights dictated the wisdom of such modification.

Although it is difficult to predict whether an imposed system would have been more productive, it is safe to say that many of the studies would not have resulted if a more restrictive operational pattern were used.

A Brief Preview

Against this background, a preview of the various phases of the study follow: Chapter I provides an overview of the growth and development of vocational education. Chapter II presents a statement of position regarding philosophy and objectives as developed by a group of vocational leaders and consultants. A survey of existing vocational curricula in relation to some aspects of the labor force is provided in Chapter III. Several studies concerned with aspects of administration, organization, and supervision of vocational education in local communities are discussed in Chapter IV. Chapter V examines the vocational teacher education in Michigan. The character of research conducted in vocational education is reviewed in Chapter VI. Finally, Chapter VII summarizes some important recommendations and suggests possible guidelines for future improvements.

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CHAPTER I

DEVELOPMENT OF VOCATIONAL EDUCATION IN MICHIGAN

Vocational education as an integral part of the Michigan educational enterprise is essentially a product of the twentieth century. From its very inception it represents a struggle for democratization of educational opportunity for the many rather than the few, on the collegiate and subcollegiate levels of instruction. The following pages present a brief account of its growth, together with the forces that had an influence on its development. Since not all readers may be familiar with the program of vocational education and its many ramifications, this chapter may be helpful as a prelude to the report.

Vocational education in its broadest interpretation encompasses both collegiate instruction leading to the professions and training for those occupations which require less than college level instruction. This study will focus on those areas of vocational education leading toward occupational competence on the high school, community college, and adult education levels.

Historically, the early concerns for vocational education in Michigan are lost in obscurity; however, one significant bench mark is the Annual Report of the State Superintendent of Public Instruction for the year 1900, in which some forty pages are given over to the then broadly defined area of manual training.[1] The following statistics together with a provocative question appear:

> From the latest reports received in this office from 43 leading cities of Michigan, we have compiled the following statistics for 1899:
>
> Total enrollment, 173,250
> Number in high school, 13,270
> Number graduating, 1,332
>
> From the most careful computations, taking into consideration that there are four high school and eight primary grades, and that only one class graduates each year, we deduce the following:
>
> Less than 16 per cent of the total enrollment enter the high school; and less than 40 per cent of this 16 per cent, or less than 7 per cent of their total enrollment, graduate from the high schools.... Something must be done to improve these conditions. Will manual training do it?[2]

Apparently there was concern for the school dropout at that time.

Agricultural Education

During this same period agitation for more instruction in agriculture in the public schools was evidenced. Lay groups as well as professional educators were interested in having more functional education for youth, as reported in the document First Came the Farms.[3]

> About 1900 the demand for agricultural instruction in the elementary and secondary schools became articulate. Teachers in scattered districts, particularly where grades

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[1] Sixty-fourth Annual Report of the Superintendent of Public Instruction of the State of Michigan, 1900. Lansing, Michigan: Department of Public Instruction, 1901, pp. 16-56.

[2] Ibid., p. 21.

[3] First Came the Farms, State Board of Control for Vocational Education, Bulletin 289, June 1944, p. 7.

> and higher educational departments were combined, undertook the teaching of agriculture to younger children. The farming population, through their organizations, began to move legislatures to pass laws permitting or requiring the instruction in the elementary schools of the state. The spread of nature study and school garden movements intensified the desire of farmers and friends of rural education to have instruction more definitely related to agriculture at least in the rural elementary schools, which usually were the only educational institutions attended by the great mass of farm boys.

By 1906, elementary agriculture was taught in about 300 school districts; by 1908 approximately 1,000 rural schools in the state were offering some type of agricultural instruction.

The first six high schools (established around 1910) providing instruction in agricultural subjects were located in Hillsdale, Hudson, Lawton, North Adams, Otsego, and St. Louis, Michigan. These six schools enrolled 160 pupils. By 1916 sixty-three high schools were offering courses with 2,547 students enrolled.

Although it would be assumed that during this early period agricultural courses would exist in rural communities, the historical record indicates that certain urban schools also expanded their curricula to include instruction in agriculture. Bay City placed emphasis on vegetable gardening, landscape gardening, and dairying. Special courses were offered for individuals interested in securing positions with the city park commission. In Muskegon, orcharding, vegetable gardening, and forestry constituted the course of study. Escanaba provided school gardens for children above the fifth grade.

Home Economics Education

Just as in the case of agricultural education, home economics as a derivative of the manual training movement came as a result of community expression. One of the first documented clues regarding the inception of home economics appeared in the previously mentioned Report of the State Superintendent of Public Instruction in 1901. The report stated:

> Manual training work in Menominee is the result of a sentiment created by a zealous, believing, working woman's club, seconded by a progressive, courageous superintendent of schools. At first a small amount of money was raised by subscription as an experiment. Members of the Woman's Club attended the schools and supervised the sewing work. Meetings were held to discuss the matter. As a result, sufficient interest was developed to secure a vote for an appropriation to establish manual training in the schools.[4]

It can be deduced from this statement that home economics education was included in the generic term, manual training. However, a more definitive label, domestic science, began to appear in subsequent reports. Mentzer points this out in reporting the number of schools with courses in domestic science during the years 1900, 1905, 1910, and 1915.[5]

As Table 1 illustrates, the increment in the number of schools teaching domestic science was relatively negligible in the five-year period, 1900 to 1905. In the five-year period, 1905 to 1910, the number had increased slightly more than three times. Nine times as many schools were offering domestic science in 1915 than in 1900.

The eleven communities that had introduced domestic science courses in 1900 were: Ann Arbor Bay City, Calumet, Detroit, Flint, Grand Rapids, Ishpeming, Kalamazoo, Muskegon, Menominee, and Saginaw. In some cases classes were scheduled starting in the third grade through high school. Eight

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[4] Sixty-fourth Annual Report of the Superintendent of Public Instruction of the State of Michigan, 1900. op. cit., p. 39.

[5] R. Mentzer, A History of the Program of Vocational Home Economics in the Secondary Schools of Michigan 1917-18 Through 1952-53, (unpublished doctoral dissertation, Michigan State University, East Lansing, 1954), p. 41.

of the eleven communities provided instruction on the elementary level; four, on the high school level. By 1915 the distribution on the elementary and high school levels was just about even, with ninety-four reporting instruction on the elementary school level and ninety-nine on the high school level. The curriculum placed main emphasis on cooking and sewing in 1900. Additional subjects were included by 1915, resulting in a broader curriculum.

Table 1

Number of Schools Teaching Domestic Science*

Year	Number of schools teaching domestic science
1900	11
1905	17
1910	53
1915	98

*Derived from the Annual Reports of the Superintendent of Public Instruction of the State of Michigan for the Years 1900, 1905, 1910-11, 1915-16.

Industrial Education

From what has been said concerning the beginnings of agriculture and home economics, the turn of the century had great significance for vocational education. The earliest traces of industrial education are found during the same period in such communities as Calumet, Battle Creek, Detroit, Grand Rapids, Lansing, Muskegon, and Pontiac. Although each of these cities was a pioneer in its own right, several have contributed uniquely to the expansion of knowledge regarding practical education. Unfortunately, the limitations of space preclude full justice to these contributions.

One of the initial efforts in establishing industrial education programs took place in Calumet, Michigan. Dalton discovered that instruction in the Calumet Schools was somewhat atypical:

> The curriculum from the early 90's was more or less an apprentice course designed to prepare mechanics for the shops of the copper mining companies. At this time men from the shops of the companies acted as teachers.[6]

Through the civic consciousness and benevolence of Mr. Charles H. Hackley, the first manual training school was established in Michigan in 1[illegible] at Muskegon. The Hackley Manual Training School, named after its benefactor, became one of the outstanding schools of its kind in the United States. In addition to providing instruction to youth in manual skills, a two-year teacher preparation program was instituted in 1903 for high school graduates who were interested in teaching manual arts and home economics.

In addition to the trade and apprentice classes offered at the Cass Technical High School in 1910, Detroit made provision for a part-time school for employed women. Instruction was available primarily in dressmaking. Evening classes were included in the program of industrial education offerings for employed workers desirous of increasing their earning power as well as those interested in preparing for employment. The cooperative work plan, in which pupils spend half-time on the job and half-time in school, was initiated in the public schools of Lansing in 1912. The city of Muskegon, as previously mentioned, received certain financial grants. However, other communities were to enjoy similar advantages, notably Saginaw. In 1909, W. R. Burt provided a sum of $2,000 to the Saginaw public schools to finance a one-year trade program. Later a gift from Arthur Hill of $200,000 supported the Arthur Hill Trade School, the first of its kind in Michigan.

State Legislative Interest

Although local initiative played the major role in the development of vocational education, state legislative acts were passed, furthering the cause sparked by local interests. Public Act 144 of 1901 provided for a course of study "which shall be approved by the superintendent of public

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[6]Dalton, Frank W., The Development of Industrial Education in Michigan, Michigan Industrial Education Society, Ann Arbor, 1940, p. 10.

instruction and the President of Michigan Agricultural College and shall not consist of more than four years' work. Said course of study may include instruction in manual training, domestic science, nature study, and the elements of agriculture."[7] In 1907, the state legislature passed Act No. 38. The language of this act spelled out rather clearly that county schools of agriculture, manual training and domestic economy could be established. General supervision of these schools was committed to the state superintendent of public instruction with the advice of the president of Michigan Agricultural College; but direct control was to be vested in a five-member county board. The act also specified that these schools were to have a two-year course, including agriculture and related subjects, and at least ten acres of land.

It was not until this act was amended by Act No. 219 in 1909 that state aid was provided for these schools. By meeting certain requirements as to equipment, buildin , and title to land which was to be used in connection with the teaching of agriculture, the school might receive an amount equal to two-thirds of the amount expended for a year up to $4,000.[8]

Not only was legislative interest apparent during these early years, but other bodies were at work encouraging the expansion of vocational education. A state commission on agricultural and industrial education was appointed by Governor Warner. The report of the commission contained the following recommendations:

> "Provision of at least one high school with a four-year course in agricultural education in each township.
>
> "Introduction as soon as possible of agricultural education, manual training, and home economics in all high schools.
>
> "Certification of all teachers of agricultural and industrial subjects.
>
> "State supervision of all agricultural and industrial courses.
>
> "State aid for all schools introducing high school courses in agriculture and home economics."[9]

The above thumbnail sketch from 1900 to 1917 describes the early concerns and curricular innovations that lay groups and educators struggled with to provide a new and different educational opportunity to youth and adults in Michigan. All of this effort proved to be a harbinger to more vigorous developments on the national, state, and local levels.

The Expanding Program of Vocational Education

The real impetus for the further promotion, stimulation and refinement of vocational education came as a result of ferment and agitation on the federal level during the first two decades of the twentieth century. It is safe to say that since that period each major forward thrust can be attributed to federal initiative and attendant financial support. Precedent had been set by passage of the Morrill Act of 1862 and subsequent legislation including the Hatch Act, Adams Act, Nelson Act, and Smith-Lever Act. These major pieces of legislation destroyed the equanimity in collegiate education by making provision for instruction in agriculture and the mechanic arts, and thereby opening the doors for educational equality. It was only a matter of time until the Smith-Hughes Act of 1917 was to provide the framework for less than college-grade instruction in agriculture, home economics and trade and industrial education for in-school youth, out-of-school youth and adults.

In 1914, Congress created the Commission on National Aid to Vocational Education, authorizing President Wilson to appoint a nine-man commission to consider the subject of national aid to vocational education.[10] The report of the commission was presented to Congress in June, 1914, and two and a half years later, in 1917, the Smith-Hughes Act was passed.[11] This piece of legislation made

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[7]Public Acts of Michigan, 1909, pp. 403-4.

[8]Public Acts of Michigan, 1909, pp. 403-4.

[9]First Came the Farms, Issued by the State Board of Control for Vocational Education, Lansing, Michigan, June, 1944, p. 11.

[10]Report of the Commission on National Aid to Vocational Education, Washington: U. S. Government Printing Office, 1914, Vol. 1, p. 9.

[11]Public Law 347, 64th Congress, Approved February 23, 1917.

provision for federal aid to the extent of $7,200,000. In addition it set down certain mandatory requirements that states were to adopt if they were to share in the financial benefits.

In the years to follow, this basic law was the subject of much controversy. Charges were made that too many restrictive covenants prevented states from developing the kinds of programs they deemed advisable. Countercharges stressed that elimination of certain requirements would result in reduction of standards. At the present time, vocational educators are not in complete agreement themselves regarding the retention, amendment, or elimination of this basic law. Regardless of what position one subscribes to, the fundamental fact remains that the Smith-Hughes Act was instrumental in ushering in a new dimension for vocational education in Michigan.

Acceptance Legislation in Michigan

In order to utilize federal aid made possible through the Smith-Hughes Act, it was imperative that acceptance legislation be passed by the various state legislatures. The Michigan Legislature, in 1917, passed Public Act 189, known as the Tufts Act, which provided the legal framework for utilization of federal and state funds. The act was revised in 1919 and the controlling law in Michigan since that time has been Act No. 149 of the Public Acts of 1919. This law still bears the name of Tufts, who sponsored it. The early experimentation and experience in vocational education conducted prior to 1917 made it possible to move rapidly, since many of the local programs met the requirements set down in the Smith-Hughes Law. Total enrollment for the year 1917-18 in agriculture, home economics and trade and industrial education was 7,218. State and federal financial expenditures in support of these programs amounted to $60,544.[12] Forty-five years later in 1962 the total enrollment was 145,986 and the expenditure, $3,535,805.[13] Unfortunately the statistics for the year 1962 are grossly inadequate. Many communities that formerly received vocational education funds conduct commendable programs without financial support, and data is not available.

Additional Federal Legislation and Grants

The Smith-Hughes Act was the only source for federal subvention until 1929. From 1929 to 1958, five additional pieces of federal legislation modified or extended aid for vocational education to the states. The George-Reed Act (1929) authorized the appropriation of $500,000 for the year ending June 30, 1930, and an additional $500,000 each year thereafter for four years. The George-Ellzey Act (1934) authorized the sum of $3,000,000 for three years. Approximately $14,000,000 was authorized under the George-Deen Act (1936). In addition, to the amounts quoted above, small amounts were authorized for administrative purposes on the federal level. It is important to point out that, with the passage of the George-Deen Act, monies were made available for reimbursement of distributive occupations, thus adding a fourth area for which federal funds were available. The George-Reed Act and George-Ellzey Act expired, whereas the George-Deen Act was amended to become the George-Barden Act (1946) which authorized the sum of $28,850,000. From 1946 to 1958, federal aid stemmed from the Smith-Hughes and George-Barden Acts. In 1958, the National Defense Education Act authorized the appropriation of $15,000,000 annually for the training of technicians necessary for national defense.

Table 2 provides a summary of federal expenditures for vocational education for fiscal year 1961.

Vocational Education in Michigan During Periods of Crises

Not only has the Michigan program of vocational education made its mark during periods of normalcy but it has also been called upon to meet the challenge of intermittent emergency demands. World War II cast its grim shadow over Michigan when vocational educators were requested to train skilled manpower in both urban and rural areas in connection with the war effort. Michigan contributed to the seven and one-half million people trained throughout the United States under the Vocational Education for National Defense Program, later renamed the War Training Program for War Production Workers and the Food Production Training Program. From 1940 to 1945, physical facilities and instructional staffs were taxed to the utmost in providing the necessary instruction to man the war production machine. Certain programs such as the Food Conservation Program were still in existence in 1962.

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[12] Annual Descriptive Report of the Michigan State Board of Control for Vocational Education, Division of Vocational Education, Department of Public Instruction, 1962, pp. 57-58.

[13] Ibid., pp. 57-58.

Table 2

Federal Expenditures for Vocational Education
Fiscal Year 1961

Purpose	Smith-Hughes Act	Title I	Title II George-Barden Act	Title III*	Total
Agriculture	$3,045,260	$10,225,579	---	---	$13,270,839
Trade and Industrial	3,103,569*	8,234,514	---	---	11,338,083
Teacher Training	1,111,817	---	---	---	1,111,817
Home Economics	---	8,215,908	---	---	8,215,908
Distributive Occupations	---	2,556,886	---	---	2,556,886
Fishery Occupations	---	105,912	---	---	105,912
Practical Nursing	---	---	$3,496,892	---	3,496,892
Area Vocational Education	---	---	---	$7,913,337	7,913,337
TOTAL	$7,260,646	$29,338,799	$3,496,892	$7,913,337	$48,009,674

*Includes Home Economics

Source: Unpublished Report from Vocational Education Division, USOE, March, 1962. Provisional figures, subject to audit of State reports.

The explosion of the atom bomb and capitulation by Japan changed the focus from destruction to assisting the veteran's readjustment to peacetime activities. Once again vocational education in Michigan was called upon to marshal its energies to this critical need. Through special programs under Federal Laws 346, 550, and 894, veterans were able to engage in educational activities leading toward successful adjustment in occupations in agriculture, business, and industry.

More recently, two federal acts have left their imprint: The Area Redevelopment Act of 1961 and the Manpower Development and Training Act of 1962. The former established a four-year program to alleviate conditions of substantial and persistent unemployment and underemployment in certain economically distressed areas. The latter is a three-year program authorizing the Secretary of Labor to appraise manpower requirements and resources of the nation, and to provide training programs for the unemployed and for those whose skills need upgrading in order to meet shifting employment needs.

At the present time, deliberative bodies, governmental agencies, and notable authorities have recommended the expansion and improvement of vocational education. Judging from these pronouncements, any argument on whether or not public education has a responsibility for the development of vocational competence is academic. A more pertinent question would be concern about what level, to what extent of specialization, and through what vehicle specialization should take place. The President's Panel on Youth Employment appointed in 1961 has submitted its report. Although all fourteen recommendations have some relevance to vocational education, two are of special note:[14]

11. Existing vocational education laws and practices should be reexamined by the Congress and State vocational education authorities.

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[14] The Challenge of Jobless Youth, President's Committee on Youth Employment, Washington: U. S. Government Printing Office, 1963, p. 11.

Where necessary, these laws and practices should be revised to:

a. Eliminate irrelevant or out-of-date limitations on the availability of Federal funds.

b. Strengthen the vocational and technical education programs by offering Federal reimbursement for training in more and different occupations. Information about job trends from public employment services, counseling and guidance organizations, as well as occupational outlook materials, should be used in determining new vocational education programs. Courses for out-of-school youth should be either on a part-time or full-time basis, regardless of whether or not the youth is employed in the trade for which he seeks training. These courses should provide for teaching of short-term or long-term occupational skills.

c. Provide for a continuing reexamination of programs and expenditures to assure that they reflect changing job needs and patterns.

d. Insure that federal vocational money should go only to states where the vocational education courses are open to all without regard to race, creed, or color.

12. Area skill centers, or technical or vocational schools, should be established in many new central locations.

Developed and administered by cities, counties, school districts, or other governmental units, these schools should draw their pupils from a large enough area to permit full staffing and equipment, and should offer a wide variety of courses. The size of the area served will vary; there may be a number of centers in a large city, or a single center for several counties. The schools should be open to adults as well as young people for full-time and part-time instruction. Their entrance dates should be flexible, and times at which courses are offered should be spread over both day and evening hours. The curriculum in these schools should provide training for any occupation in which a job may be reasonably expected and for which youth may be qualified. Training programs for high or less demanding skills should be adequate and of reasonable duration, in order to prepare boys and girls for the occupations they propose to enter.

Just prior to the appoint of the Panel on Youth Employment, the President in his message to Congress, February 20, 1961, requested the Secretary of Health, Education and Welfare to convene an advisory body to review and evaluate the current National Vocational Education Acts and make recommendations for improving and redirecting the program. The Panel of Consultants on Vocational Education has submitted its report recommending certain changes, refinements, and expansion of the vocational education program.

The Manpower Report of the President to the Congress states:[15]

> We must modernize and enlarge our vocational and technical education programs for all age groups and focus them on occupations with future opportunities. Adequate facilities and qualified teachers are disturbingly below need; vigorous expansion is needed if we want tomorrow's workers to be qualified for tomorrow's needs.

Additional citations are available; the persistent buzz for more and better vocational education programs is increasing to a crescendo. The voices antagonistic to vocational education are strangely silent. At this juncture in history, the mandate to the Michigan program is quite clear--evaluation and realignment is the order of the day.

Enrollments in Vocational Education in Michigan

A review of the information as reported in the "Annual Descriptive Report of the Michigan State Board of Control for Vocational Education," June, 1962, shows that vocational programs in the high schools, community colleges and other area schools, and the degree-granting institutions are increasing. A large portion of this increase is registered in programs for out-of-school youth and adults. The following table presents the enrollments in the various vocational education programs for the year 1962-63.

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[15] Manpower Report of the President, U. S. Department of Labor, Washington: U. S. Government Printing Office, 1963, p. XVIII.

Table 3

Enrollments in Vocational Education
in Michigan 1962-63

Service	In-School (High School)	In-School (Post High School)	Out of School Youth and Adults	Total
Agriculture	12,796	---	3,303	16,099
Distributive:			15,514	15,514
Cooperative	2,848	255	---	3,103
Office (Cooperative)	3,445	291	---	3,736
Homemaking	43,313	---	20,566	63,879
Trade & Industrial	6,336	10,876	27,921	45,133
Practical Nurse and Other Health Occups.	381	1,992	185	2,558
Technician Programs	398	3,717	2,177	6,292
TOTALS	69,517	17,131	69,666	156,314

CHAPTER II

PHILOSOPHY AND OBJECTIVES OF VOCATIONAL EDUCATION
A STATEMENT OF POSITION

The formulation of education policy and its attendant translation into action cannot be accomplished in a vacuum. What are the responsibilities of a democratic society toward helping its members decide about and prepare for their life's work? A basic tenet of democracy is that everybody should have the right to choose his own work. Furthermore, he should have access to the education he needs to qualify for the work. Third, he should be permitted to utilize effectively the education and training which he obtains.

Modern democratic society clearly does not regard labor as odious or disgraceful; on the contrary, in the United States at least, it regards leisure with suspicion and expects each person to contribute through socially useful employment. In addition, each individual is expected to govern his own life and share in the responsibility for the management of the community. It is also clear that the need for a concurrent, balancing force of general education is imperative. Making a living is the function of the citizen, and being a citizen is a function of the worker.

We are living in an age of specialization in which the avenue to success lies in the choice of an occupational career. Observers of the future predict that specialism promises to be on the increase, even though of different dimension. Improvement in equipment and technology doubles the productivity of the average worker of each generation. Science and technology have presented adequate evidence that a high degree of specialized knowledge and skill is an imperative.

A. Occupational Choice is a Continuing Factor. The development of manpower in any sector of our economy results from an interplay of many forces. Thus, the home, the formal educational structure, the armed services, and the agriculture-business-industry complex all act as determinents in shaping the manpower potential. For example, the determination of occupational choice is never a single action, but the result of a continuing process initiated in early childhood, usually determined tentatively in young adulthood, and tempered or changed in later life. All of the forces mentioned may influence the original and subsequent occupational choices of a substantial segment of our work force. The formal educational structure through the high school, collegiate, and adult education programs should play a role in preparing, in retraining, and in upgrading individuals throughout their careers.

B. Military Training Plays a Role. Compulsory military training has become a fixed part of the life of most men. In only two years since 1940 were there no inductions. Many young men spend as much time in military service as they do in high school. Approximately one-half of all military assignments require men trained in some occupational area beyond basic instruction.

C. Business and Industry Develop Manpower. Industry and business, through apprenticeship, training programs, and opportunity for cumulative job experience, make the greatest contribution to the development of manpower.

D. Productive Resources Can Be Wasted. None of these agencies, however, contributes with maximum efficiency to the increment of the skills of a nation. Discriminating observers point out that four factors contribute to the squandering of our human productive resources: unemployment, underemployment, inadequate training, and arbitrary barriers to employment.[1]

1. The first is waste that arises when there is a shortage of jobs, so that men accustomed to work become idle and young adults find little opportunity for employment.

2. The second waste - underemployment - results from individuals who may have partial employment, but could, if opportunity were available, make better

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[1]Eli Ginzberg, Human Resources; The Wealth of Nations (Simon and Schuster, New York, 1958), p. 41.

use of their talents. These may include such individuals as those living on farms who are busy during a portion of the year, and homemakers who would welcome the opportunity for paid employment. Underemployment may also occur when positions held by full-time employed workers are not commensurate with their potential.

3. A third waste arises when the community fails to invest in, and plan adequately, the education and training of young people and those already employed.

4. The fourth waste centers in the imperfections in the employment market. Waste of manpower also occurs from discrimination against minority groups, the inadequate use of womanpower, the drain on human resources through inadequate treatment of mental disease, and a host of other deterrents.

Role of Formal Education

Public education has a substantial contribution to make in the development of competent workers and the conservation of human resources.

The charge to public education is rather obvious. Two strands of education inseparably woven together must be considered: that part of a person's development which looks first of all to his life as a responsible human being and citizen, and that part which looks to the person's specializations. Each aspect should seek to complement the other. For example, it is difficult to isolate the contribution that an individual makes through work from his role as a citizen. Unfortunately, too many make false distinctions at this point.

With all the educational forces at work, both formal and informal, the role of the public school throughout the life of an individual is one of emphasis. In the early stages of a person's development, the elementary school and general education are usually synonymous, since the emphasis from kindergarten to junior high school deals with common learnings. In the junior high school exploration is provided through a wide range of experiences. The pupil comes in contact with a host of activities such as science and mathematics, designed to provide additional general education and identification of interest-specializations. This concept of specialization includes not only vocational interests but intellectual and cultural as well. From this point on specialization becomes increasingly evidenced.

In the senior high school specialization for one student comes in the form of a selection of courses leading to a specific vocational objective in junior college or university. Another may pursue a similar sequence or a different sequence on the basis of pure interest without specific regard for occupational competence. This specialization may represent additional general education. Another student may regard as his speciality the preparation for some form of employment on completion of high school.

In adult education this interrelationship between generalization and specialization should continue. Planned, personalized adult education programs, including counseling, should be the right of all citizens in a democracy.

The basic problem is then to find an answer which will combine the responsibilities of a democratic society to each individual for (1) choosing, entering into, and progressing in an occupation, and (2) the personal-social competency necessary for active participation in society.

Throughout all of this, one salient index prevails: we must prepare youth for an occupational and family life, the specific elements of which we cannot predict. And we must be prepared to cooperate in keeping adult workers abreast of new knowledges and skills as these become functional in our industrial life, our business life, and our home life. The Special Studies Project of the Rockefeller Brothers Fund says in its Report by Panel V:[2]

> There is a constant pressure by an ever more complex society against the total creative capacity of its people. Our most critical need a decade hence may be unknown today. Rather we must prepare ourselves for a constant and growing demand for talents of all varieties, and must attempt to meet the specific needs of the future by elevating the quality and quantity of talented individuals of all kinds.

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[2] Rockefeller Brothers Fund, The Pursuit of Excellence, Education, and the Future of America, Special Studies Project Report V. (New York: Doubleday & Company, 1958), pp. 10-12.

> One of our great strengths as a people has been our flexibility and adaptability under the successive waves of change that have marked our history. Never have we needed the trait more than today. It is for this reason that we should educate our young people to meet an unknown need rather than to prepare them for needs already identified.

Such factors, plus the basic view of vocational education in the total educational complex, form the backdrop for the suggested line of inquiry regarding philosophy and objectives of vocational education.

Undergirding any educational venture is the set of beliefs and aims which provide direction for subsequent performance. In a changing, dynamic, technological society, beliefs and objectives must be examined. How do leaders in Michigan perceive the role of vocational education in the educational structure at this critical juncture? What position are they willing to endorse for future direction? In order to arrive at answers to these questions, the first impulse was to have an independent researcher make a critical analysis of the official pronouncements, catalogues, and bulletins and, thereby determine the extent of agreement and diversity. However, statements prepared in the past frequently do not have sufficient currency to reflect present thinking and future outlook. Considered judgment, therefore, dictated the more tedious route of deliberation and discussion. Out of such deliberation would emerge a reexamination and reformulation of a statement of position.

Procedure

In January, 1960, a task force on Philosophy and Objectives was appointed by the Executive Committee. The primary mission of this task force was to develop a statement of beliefs and objectives providing guidelines for other groups involved in the evaluative study. In addition, it would serve as a basis for school administrators, teachers, and lay people who either had the responsibility for planning, organizing, and executing curricula or who had a general interest in educational matters.

The remaining portion of this chapter represents the findings of the task force after a year and a half of arduous work. Part I discusses the objectives of education in Michigan. Part II spells out the meaning and nature of vocational education. Parts III through VI present, in considerable specificity, the objectives of the various areas of vocational education, namely, agriculture, business and distribution, home economics, and industrial education. Part VII suggests some concrete recommendations for use of the material.

Part I

Objectives for Public Education in Michigan

Any area of school instruction must be evaluated in terms of its contribution to overall objectives. Since vocational education operates within a framework of total education, Task Force No. 1, as the first action group of the Michigan Vocational Education Evaluation Project, examined and considered objectives for public education and the contribution that vocational education makes to them.

The selection of these objectives for this statement was influenced by several considerations: the unique contribution of comprehensive educational programs; the right of all individuals to achieve to the extent of their ability; the need of our society for the talents of all as citizens and productive workers; and the desire to crystallize thinking about our schools.

It was decided that this statement should be presented in brief form, yet be comprehensive enough to serve all levels of public education. The goal was to prepare a statement of objectives acceptable to school leaders and the general public, which in turn will serve as a basis for the evaluation of Michigan's vocational education programs.

This statement of objectives stems from the "Ten Imperative Needs of Youth." In 1959, the Michigan Association of Secondary School Principals adopted and reaffirmed this statement. The present statement is a modification of these earlier ideas in terms of the space age and makes them applicable to children, youth, and adults.

American schools must be guided by many objectives. Priorities in objectives can best be determined in terms of individuals and local school situations. Thus, there is no significance in the order of listing of the following objectives.

In addition to the home, church, and community groups, the school contributes to the fulfillment of the basic needs and the development of individual aspirations for continued personal growth of children, youth, and adults through these objectives of education:

1. To understand and appreciate American democracy, including the rights and responsibilities of its citizens, and to be diligent and competent in performing obligations as members of the family and community and as citizens of the state, the nation, and the world.

2. To grow in ability, to think rationally, to express ideas clearly, and to read and to listen with understanding.

3. To develop basic communication skills and mathematical concepts in such ways as to be functionally useful.

4. To develop abilities, attitudes, skills, and understandings that make a person an intelligent, occupationally competent participant in the changing economic life.

5. To develop the attitudes, competencies, and understandings basic to satisfying family life.

6. To develop capacities to appreciate nature and the arts in our own and other cultures.

7. To understand the methods of natural and social sciences, the influences of science on human life, and the nature of the universe and of man.

8. To develop and maintain good physical and mental health.

9. To grow in insight into moral and spiritual values and to act in accordance with these values.

10. To be able to use leisure time effectively.

11. To understand and to appreciate the American economic system.

12. To be able to purchase and conserve human and material resources and use goods and services intelligently.

Part II

The Meaning of Vocational Education

Introduction

This section deals with education for vocations, as embodied in the Task Force No. 1 statement, "The Objectives for Public Education in Michigan." Programs in vocational education contribute to the twelve objectives listed therein, but the objective to which they should make the largest or most direct contribution is number four: To develop abilities, attitudes, skills and understandings that make a person an intelligent, occupationally competent participant in the changing economic life. The goal of programs of vocational education should be to contribute in a unique and specific manner to the development of individuals who will possess necessary competencies for chosen occupations. A concomitant goal should be the economic improvement of society.

A Concept of Vocational Education

Within the context of this document, vocational education means education that is needed to engage in socially useful work. It goes further than general education by dealing in a more specialized manner with the development of occupational competency. The concept is not restricted to those programs which are reimbursable through the National Vocational Education Acts.

Vocational education involves a variety of student experiences or learning activities, including supervised work experience in and relating to the desired occupational field. There also should be instruction designed to provide information, to develop understandings, to illustrate the application of principles, and to motivate and develop socially desirable attitudes for the person preparing for entry or advancement in an occupation. Such organized instruction should be given by those who possess competency and experience in the occupational field involved. Student activities contribute to vocational education when based upon students' interests in the occupation and when related to the occupation. When student, teacher, employer, and/or parent cooperate in planning these activities and experiences, such activities become increasingly appropriate and effective.

The content of education for a specific occupation should be derived from analyses of information from several sources. These include employers and supervisors; the workers themselves; self-employed persons and parents; agencies, organizations, and community institutions. Use should also be made of reliable research by professional workers; by industrial, business, trade, and agricultural associations; by governmental and educational agencies; and by research foundations.

Effective programs of vocational education may be organized: (1) to prepare individuals for entry into employment; (2) to upgrade or prepare those already engaged in an occupation for advancement in it, or for retraining for another occupation; (3) to provide basic preparation for additional specialized vocational or professional education.

The desired outcomes of these programs will vary considerably from one occupational field to another. The objectives for each field should be considered, and stated in terms of behavioral change. Some of these naturally will apply more to one age or maturity level than to another, and will vary with the school level in which programs are placed. While objectives will differ for each field, certain ones could be identified as important for a vocational education program in any field. The following are suggested outcomes for programs of vocational education, expressed in terms of characteristics of a person occupationally competent in today's society.[3]

1. He has mastered the basic abilities or skills and the technical information according to the standards of the job market or requirements for success in the occupation.

2. He understands the requirements of the occupation and how nearly he has met or will be able to meet these requirements.

3. He understands how to get a job or otherwise to make a beginning in his chosen occupation.

4. He understands how to prepare for advancement in his chosen work.

5. He understands the relationships between management and employees in his occupation, as well as the functions of their respective organizations.

6. He understands the relation of government to this occupation.

7. He understands how his occupation functions in relation to others and to the local, state, and national economy.

8. He knows how to utilize the public and private services available to him for use in the occupation.

9. He is aware of, and is disposed to make use of, educational opportunities to qualify for advancement in the occupation; and to acquire new understandings, abilities, and skills resulting from increased application of technology to the occupation of his choice.

10. He has developed some ability to make wise decisions on questions facing workers in a rapidly changing occupational setting.

Preparation for work has always been an important part of education. Success at work is essential for survival and for the development of a good life. To provide one's share of the goods and services needed by mankind is a recognized attribute of citizenship. As public schools have been established, vocational education increasingly has been included as a part of a total educational program. One educational goal toward which the public schools have worked is the development of systems that are comprehensive in character. Present and prospective workers for all walks of life need to attend such a comprehensive educational system where they may learn to live and to make a living. While not all vocational education needed by people can be given in community schools comprehensive in their scope, the curricula of such schools should reflect as far as possible the needs of the students for specialized education.

In addition, certain aspects of effective education for occupational competency include general education. Effectiveness in any occupation is dependent on the development of functional abilities in written and oral communication, critical thinking, care of oneself, human relationships, and citizenship. All educational subjects and experiences should, if properly taught, contribute to occupational competency. Courses in English, science, social studies, and mathematics are typical offerings dealing with these general aspects.

Included also among the subjects of value to everyone, regardless of his occupational aspirations, are certain subjects and curricular areas which emphasize practical activities. These contribute to the development of understandings, attitudes, and general competencies required in various occupations; provide exploration or tryout experiences in various occupational areas; and help the student and his teachers identify or substantiate vocational interests, aptitudes, and abilities. They also help to motivate a student in an occupational choice; to acquire useful information about occupations and himself; and to choose that program which best fulfills his educational needs.

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[3]An adaptation of statements of purposes of vocational education from The Educational Policies Commission, Education for All American Youth (Washington, D.C., NEA, 1948), pp. 289-290.

Relation of Vocational Guidance to Vocational Education

Vocational education is most effective when it is preceded, accompanied, and followed by vocational guidance. When youths are provided with continuous, adequate guidance services, they are assisted to make known their occupational interests, abilities and aptitudes, and to prepare occupational plans. Programs in vocational education offered in a school should reflect the vocational interests, the employment opportunities, and the training needs of youth and adults. Specialized courses for development of specific occupational competencies should be available to those persons who want them, need them, and can profit from them.

A good program in vocational education, like any other program in a comprehensive school system will, of necessity, involve individuals of varying general and special aptitudes and aspirations. Vocational education has a place in the total school program to help youth to make and substantiate vocational choices and to relate educational plans to these choices. It also should provide motivation for other school work, and indeed could be used as a focal point toward which many of the total educational experiences or activities may be directed.

Part III

Philosophy and Objectives for Agricultural Education

Vocational education in agriculture and general education in agriculture both should contribute to the attainment of all objectives of education in Michigan as stated by Task Force No. 1. The objectives of vocational agriculture as presented in this report should be considered as contributing principally "to develop abilities, attitudes, skills, and understandings that make a person an intelligent, occupationally competent participant in the changing economic life." The modification of this objective for vocational education in agriculture is to substitute the words, "agricultural occupations" for "the changing economic life."

For many years the objectives stated in Educational Objectives of Vocational Agriculture[4] have been a guide for educators. These objectives have recently been reviewed and revised by leaders in agricultural education in Michigan, and appear in This We Believe About Vocational Agriculture.[5] A more detailed description of these objectives of vocational agriculture is found in these two publications.

The public school should provide an educational program which will have the major responsibility for developing needed agricultural abilities, attitudes, and understandings of persons engaged in or planning to engage in agricultural occupations. A comprehensive program in vocational agriculture should meet the needs of people in the community served by the school. This should include persons such as young or adult farmers currently engaged in agricultural work, or those such as high school students planning to engage in farming or in other agricultural occupations. Persons engaged in farming may be full-time farmers or those operating a farm on a part-time basis. Vocational agriculture on the high school level should also provide for youth interested in non-farm agricultural occupations, so that they might participate in learning situations contributing to the development of agricultural competencies for such occupations.

Area schools, community colleges, and technical institutes should consider programs to meet the expanding need for technically trained persons in agriculture. Such programs should develop highly specialized skills in areas where the number of workers required do not justify every public school offering this instruction.

Vocational agriculture, like other fields of vocational education, encompasses more than classroom or school shop instruction. The home farms provide laboratories for many learning situations. In addition, many schools find it desirable to provide an agricultural land laboratory. The local chapter of the Future Farmers of America should be utilized to organize and carry out many group projects to enhance learning. Individual farming programs of students should be utilized to make instruction practical and to provide for individual instruction on the farm.

Many of the abilities to be developed in agriculture are managerial in nature. Therefore, the instruction should be related to real business situations in agriculture involving finance, credit, record keeping, and the legal aspects of agriculture.

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[4]Educational Objectives in Vocational Agriculture, U.S. Office of Education, Washington, D.C., Vocational Division, Monograph No. 21, Rev. 1955.

[5]This We Believe About Vocational Agriculture, Michigan Department of Public Instruction, Lansing, Michigan, Publication No. 509, 1960.

The objective of vocational agriculture should be to develop abilities, attitudes, skills, and understandings that make a person an intelligent, occupationally competent participant in agricultural occupations. This objective is broken down in the following manner:

a. The basic objective for persons engaging in farming is the development of effective abilities, attitudes, skills, and understandings to:

   1. Make a beginning and advance in farming.

   2. Produce farm commodities efficiently.

   3. Utilize adequately farm buildings, power, machinery, and services.

   4. Use sound judgment in buying and selling, such as machinery and farm commodities.

   5. Conserve soil and other natural resources.

   6. Conserve human resources through greater use of farm safety, sanitation, and labor-saving practices.

   7. Manage a farm business efficiently.

   8. Improve living conditions in the home and community.

   9. Use credit wisely in farming operations.

   10. Interpret the relationship of agriculture to society.

b. The educational objective in agriculture for persons such as agricultural professionals, technicians, processors, and servicemen, engaging in occupations with some agricultural activities, is the development of those basic abilities, attitudes, skills, and understandings for farming that are found in specific occupations, and should include:

   1. Study of career opportunities in occupations requiring some agricultural background and training.

   2. Farm work experience, together with instruction basic to the agricultural activities of workers in non-farm occupations.

Part IV

Philosophy and Objectives for Education for Business (Distribution and Office)

The Nature of Education for Business: Distribution and Office

At the turn of the century, business education was accepted as a phase of public education to prepare typists, stenographers, and bookkeepers. Its reason for being has now extended to include other office responsibilities, plus basic business and distributive education, as a phase of the curriculum in most comprehensive schools. Distributive and office education are areas of study that prepare individuals for the business aspects of family living as well as for earning a living in business.

A program of education for business, an essential part of the total program of education, consists of a basic phase with opportunity for specialization in (a) distributive education, and (b) office education.

Basic business education develops general business understandings, skills, and economic concepts needed by all individuals. Distributive education prepares individuals for all levels of employment and responsibility by providing instruction in marketing, merchandising, and management for those preparing for or engaged in retailing, wholesaling, and service businesses or activities. Office education prepares individuals for the various levels of office employment and responsibility.

The impact of invention and increasing complexity are changing the nature of the American economic society. The rapidly changing business climate impels a close liaison between schools and business through coordinated work experience for instance, or similar job laboratory experience beyond that found in other academic areas.

Education for business contributes to the general education of all students through the tools or content of business. For example, typewriting contributes to the communication development of all who seek it. The business transactions of the local supermarket or the nearby office become media through which all students can learn to make wise economic decisions. Indeed, the nature of business problems lends itself to teaching for thinking, for creating, for solving problems, and for arriving at sound solutions--a necessary end result of all education.

For many students who seek early employment, education for business is an exploration to assess personal attributes with the demands of distributive or office pursuits. For others who have not made a definite career decision, it is a broad job preparation that can be used for advancement through a succession of occupations. And for still others who have chosen an appropriate occupational goal in distributive or office work, it is the skilled and technical preparation required to enter upon, and advance in, a career.

Education for business provides important ancillary understandings and skills. It should equip the small manufacturer or operator of a repair shop with the business "know-how" to earn a profit. It should provide the person who seeks a college education with marketable skills to enable him to earn part of his expenses while in school. Bookkeeping, for example, can be very vital to the farm entrepreneur, who can be successful only to the extent that he arrives at wise decisions based on accurately recorded and interpreted financial data.

Basic and Economic Objectives of Education for Business

Basic business education consists of courses that contribute to general vocational understandings and efficiency, social and economic understandings, and personal growth values. The chief goals of basic business education are:

1. To develop the proper attitudes, the desired character traits, and ability to get along well with fellow workers in office and distributive pursuits.

2. To teach students to apply business skills, understanding, concepts, and principles in the orderly organization and conduct of their personal business affairs.

3. To help students prepare for distributive, office, and related professions by providing basic background instruction.

4. To develop those business skills and abilities which help self-employed individuals to operate their business in an efficient manner.

5. To help the student meet the requirements of his occupational pursuit and his personal life through reviewing, expanding, and applying arithmetic and communication knowledge and skills.

6. To develop an understanding of the principles of business law and of an individual's personal duties, rights, and obligations in financial transactions.

7. To give the individual a useful understanding of basic economic concepts, including the organization, finance, and operation of a business.

Objectives of Education for Office Occupations

In addition to contributing to the basic office competencies such as communication and computation, the major goals of education for the performance of office functions are:

1. To provide prevocational orientation for those who have only a general desire for some type of business work or who have made an unrealistic selection without self-appraisal.

2. To provide the general clerical experiences that lead to attitudes, knowledges, and skills necessary for initial employment in nontechnical office job classifications or for basic office task performance in the technical classifications.

3. To provide for the needs of students, employees, and employers by technical preparation in such fields as stenography and the newer office job classifications developing through electronic invention.

4. To prepare students for a new environment by an emphasis on thinking, problem solving, and wise decision-making.

5. To develop ancillary occupational understandings and skills for those planning careers in areas other than business.

Objectives of Education for Distribution

Education for distribution is identified as a program of instruction in marketing and distribution, at the secondary, adult, and community college levels.

Distributive occupations are defined as those followed by proprietors, managers, supervisors, and rank-and-file employees engaged primarily in marketing or merchandising goods (the products of farm and industry) or services. Such occupations may be found in various business establishments such as retailing, wholesaling, manufacturing, storing, transporting, financing, and/risk bearing. This means that distribution can be a function in many occupations as well as an occupation itself.

Education for distribution has received considerable recognition in recent years as an essential instrument for the efficiency of our marketing system. Today's marketing situation in our country indicates a special need for increasing and strengthening education in distribution. The growing importance of distribution itself has been demonstrated by the growing number of jobs the field of distribution provides.

Distribution also makes possible the benefits of mass production. If distribution fails to achieve its maximum efficiency and purpose, the nation will fall short of reaching its greatest potential in service and economic progress. Moreover, the growing complexities of operating practices in marketing and distribution accentuate the need for greater skills in the management and ownership of business. Learning by experiences is no longer sufficient for the difficult tasks with which business managers and supervisory personnel are confronted today. Education has become a necessity. The major objectives of education for distribution are:

1. To develop an understanding of the contributions that the field of distribution and marketing make to the individual and society.

2. To develop an awareness of the varied career opportunities in distribution through providing the kind and amount of instruction needed.

3. To help the individual to enter into and achieve continued success and advancement in distribution and marketing through providing appropriate instruction and experiences.

4. To improve the operational techniques in distribution and marketing.

5. To develop an understanding of the social and economic responsibilities and ethical conduct which accompany the right of the individual to engage in distribution and to maintain a competitive, free-enterprise economy.

Part V

Philosophy and Objectives for Homemaking Education

Homemaking education is that part of total education which enters upon relationships, responsibilities, attitudes, and activities carried on in the home. It is a tool subject for that vocation for which all other vocations exist--the making of a satisfying home. It draws upon the arts and sciences for its guiding prinicples, and is related to all other subjects in the school system, since each also makes a contribution to home and family life education. Homemaking should be considered as essential education for all, to be available at all educational levels from the home through doctoral levels, and in both organized and informal offerings.

Homemaking is the only educational area that is centered entirely in the family: its care, development and nurture; its use of resources, human and nonhuman; its balance of social, managerial and manipulative skills; and its interrelations and contributions to community, national, and international life.

Each individual is not only part of a nation and a world. He or she lives also in other social units--a family, a community. The needs of families cannot be separated from the needs of the greater society, nor from the behavior patterns of its family members.

Provision of offerings that help homemakers with their problems through adult education assures greater confidence in their abilities to make successful homes.

Homemaking is a many-faceted school program, all interrelated as are aspects of home and family life. Providing depth in learning to meet needs, current knowledge, and trends is a challenge worthy of the best qualified teachers. Curriculum should be flexible to meet changing needs in local communities and in society; i.e., earlier marriages, and an increase in college-bound students.

Homemaking education can affect family living patterns. Such changes can be reflected in national life and in better world cooperation.

As vocational education, homemaking education is an integral part of the school program and should contribute toward the achievement of several of the objectives proposed for public education in Michigan. Although the primary purpose of homemaking education is to prepare individuals for more satisfying home and family living, some attention should be given to wage-earning opportunities.

The basic objective of homemaking education should be to help the individual to live a useful and satisfying personal, family, and community life. The following are general objectives of homemaking education for all age groups:

1. Appreciate that the home and family are the core of the American way of life.
2. Live more democratically in the family and society.
3. Understand and live happily with their families and other people.
4. Recognize their personal and family problems and acquire the learning needed to solve them.
5. Develop skill in using human and material resources of the home.
6. Use the family income to the best advantage of each member of the family, and of the family as a unit.
7. Develop and use homemaking skills so that they will be recognized for their contribution to family living and not as ends in themselves.
8. Achieve a set of values to use as guides in personal and family living.
9. Understand, guide, and care for young children.
10. Develop understandings of the duties and responsibilities involved in family living.
11. Understand how changes have influenced life for both the individual and the family and provide them with some tools for meeting changes.
12. Enrich personal and family life through the arts and humanities.
13. Contribute and participate in activities for the improvement of the community.
14. Provide opportunities to explore careers in home economics.
15. Appreciate the values in wholesome family living for the individual, the family, and the community.
16. Understand the importance of education for homemaking and develop a desire to be a good homemaker.

Part VI

Philosophy and Objectives for Industrial Education

Any industrial education program must be based on a sound philosophy to furnish direction and incentive for it in a total learning program. Education should prepare youth for present-day living, and be of proper scope and depth to cope with the changing conditions of future living. To this end, then, explicit objectives of industrial education are essential if the contribution of this field to a total program of education is to reach its maximum.

Public education in a democratic society has responsibility for helping persons evaluate their abilities, interests, and potentialities, to work successfully in industrial and technical pursuits, and to assist those who should be encouraged to enter these essential occupations in acquiring and maintaining the needed specialized skills. It is essential that industrial education maintain significant and broad offerings to support a total program of education. The goal is the development of a contributing citizen for a democratic society--one who is well qualified to assume his place in a world where industry has such an important place.

In the modern world, industrial education means more than the mere transmission of skills and technical knowledge. It interprets industry and contributes to economic, social, and industrial

progress as it facilitates man's efforts in experimenting with better and more efficient productive methods in industrial pursuits. Industrial education is the successful transmission of man's increasing knowledge and ability to control and utilize the forces and materials of an industrial culture. This results in the improvement of tools and useful products to advance civilization. Society's greatest resource for industrial development is its skilled and technical manpower.

Industrial arts is that phase of industrial education which is offered for its general educational value. In our highly industrialized social order, it may serve as a means of exploring industrial knowledge, industrial methods, hobby interests, and the development of such attitudes as will enable youth and adults of all ages to adjust more adequately to responsibilities of a democratic society. The specific involvement of youth with tools, materials, and equipment gives them the opportunity to relate general education subjects to occupational exploration which offers a meaningful and practical response.

Trade and technical courses should provide instruction for entry into employment and for upgrading those persons in occupations concerned with designing, producing, maintaining, and servicing industrial products. These specialized areas in industrial education place emphasis on pride of and respect for workmanship, practical application of scientific and mathematical principles, essential technical information, developing skills in manipulative occupations, safety practices, good work habits, and a wholesome attitude toward keeping abreast of technological developments.

Among the objectives that are being advanced for total education, reference is made to developing abilities, attitudes, skills, and understandings that make a person an intelligent, occupationally-competent participant in a changing economic life. Since industrial pursuits make up a large portion of the total occupational complex, the following objectives tend to enhance these outcomes in desirable individuals seeking to build basic competencies in that field of education concerned with industry:

1. To assist students in determining their abilities, interests, and potentialities. By providing for general basic exploratory experiences in woodworking, metalworking, electricity and electronics, power mechanics, graphic arts, drafting, industrial crafts, and current industrial practices and methods.

2. To develop competencies in the industrial application of mathematical and scientific principles and in communication.

3. To develop understandings about industrial and related occupations of American industry for education and occupational guidance purposes.

4. To develop fundamental and essential occupational competencies for selected students entering industry:

   a. by providing basic instruction for those planning to enter an apprenticeship.

   b. by providing basic training for those entering the nonapprenticeabl, industrial pursuits.

   c. by providing related information for apprentices.

   d. by stimulating interest and developing talents in the technical occupations.

5. To develop basic understandings for those students in a college transfer program to become engineers, industrial education teachers, or qualifying for positions of leadership in industry through providing for the required technical courses in engineering shop, engineering graphics, automotive mechanics, electronics, and the like.

6. To develop added competencies in people who are now engaged in industrial occupations through industrial technical instruction.

7. To retrain adult workers whose skills are no longer adequate due to technological developments in industry, through industrial-technical instruction.

Part VII

Conclusions and Recommendations

Earlier in the report reference was made to the concerns of the Advisory Committee regarding the relationship between general education and vocational education and the preparation of a set of objectives for vocational education. These may bear repeating:

1. Since misunderstanding seems to attend the role of vocational education in the program of public education in Michigan, a statement of beliefs regarding the relationships between vocational and general education should be developed. This would enable educators and lay groups to have a base on which to communicate more effectively. It would also serve as a point of departure for determination of educational objectives.

2. It was generally agreed that any evaluative study must be rooted in educational objectives. It would seem appropriate to review the objectives of vocational education in terms of the changing socio-economic scene. The evaluation should be concerned with objectives that reflect "what should be done" rather than concern with "what is."

It is hoped that the previous statement of position satisfies this requirement.

Conclusions

Analysis of the statement points up the following conclusions:

1. That public education has a responsibility for conservation of human resources brought about by unemployment, underemployment, inadequate training programs and imperfections of the labor market resulting from discrimination against minority groups, disadvantaged younsters, inadequate use of womanpower and other deterrents.

2. Closely allied to the above, the mandate is evident in the statement that all individuals have the right to secure the advantage of vocational education whether they be employment bound before, or after completion of high school, or college bound. That public education must also establish the organizational arrangements to deal with the disadvantaged youngsters as well as adults. This implies in some respects a departure from traditional patterns attending the reimbursed program.

3. The inevitability of change and the inadequate means at our disposal for predicting long range needs for various types of workers should be reflected in vocational education programs that will enable individuals to expect change as a continuing factor in their occupational life and have sufficient flexibility in assisting them to adopt change.

4. The statement implies that vocational programs conducted under the aegis of the public schools represent only one of the organizational pathways contributing to the development of the labor force and that certain complementary and supplementary agencies exist and that concerted effort must take place if maximal impact is to be made in manpower development.

5. Although the issue of breath versus specialization has not been totally resolved, it is clear in the foregoing statement that a different emphasis obtains than in some of the earlier pronouncements and interpretations of the basic vocational education acts. It is apparent that the leadership in Michigan's program of vocational education subscribe to a wholesome blending of general and specialized education including vocational education and that an interrelationship should exist in which sharp lines of distinction between general and vocational education are considered artificial.

6. It is also explicit in the statement that individuals enrolled in vocational education programs should be provided with many alternatives as a result of their training. One senses readily that the once prevelant notion of preparing individuals for specific jobs has been broadened to consider training for occupational areas and clusters of occupations.

7. The statement provides the opportunity to discuss with more precision the objectives of vocational education in various fields. In the past, statements of objectives have been abstract and nebulous. Sufficient specificity exists in the stated objectives to communicate more effectively, design curricula more precisely and to evaluate results more intelligently. As the task force has indicated, if additional time had been available the objectives would have been translated into behavioral outcomes which would have the added advantage of more specificity.

8. Although the unitary concept of general and vocational education is evident, the statement is strangely silent about the needed unification within the respective fields of vocational education. It is no longer necessary to speculate about the fact that the occupational complex demands certain occupations requiring training that cuts across several fields. One gathers from the heavy emphasis on compartmentalization that this factor has not been taken into account and that little interrelationship exists among the various fields.

9. Greater emphasis is given to certain learning concepts dealing with the application of scientific and mathematical principles, critical thinking and effective communication. This may not necessarily imply the reduction of manipulative skills but rather a more judicious selection of content to be taught, improved methodology utilized in teaching the content, and, in some instances, additional time.

Recommendations

Statements of philosophy and objectives such as the one prepared by the task force may be either instrumental in bringing about change or may be relegated to gather dust without having the desired effect. The expenditure of time and effort on the part of those leaders who deliberated long and diligently to refine a position should not follow the latter course and, therefore, some recommendations for implementation are provided:

1. It is recommended that the Department of Public Instruction prepare a publication for dissemination to various groups and individuals who are in a position to act as change-agents. This should include particularly school administrators who play a key role in engineering change, school boards members, guidance counselors, and others internally connected with the school system. Legislative leaders, business and industrial leaders, and lay leaders should also be recipients of the publication.

2. It is recommended that the Department of Public Instruction through the instrumentality of the Michigan Curriculum Committee provide for discussions and interim study addressed to the need for more and better types of vocational education using the statement as a point of departure. It is further recommended that the Division of Vocational Education in the various conferences under its control suggest that certain sessions be given over to discussion of the statement.

3. It is recommended that state consultants, teacher educators and others who may engage in program evaluation in local communities may wish to utilize the statement in evaluative studies.

4. That the statement or a counterpart be submitted to the various professional journals for publication.

5. That vocational education teachers in local communities be encouraged to read and discuss the statement to determine the extent to which the objectives are reflected in their teaching.

6. That faculty in institutions of higher education who have the responsibility for preparing various school personnel receive review copies of the statement.

CHAPTER III

THE VOCATIONAL NEEDS OF MICHIGAN AND ITS LOCAL COMMUNITIES*

The United States is an affluent society when measured by such economic indexes as gross national product or per capita national income. However, a new industrial revolution, an inadequately expanding economy for the expanding population, and the convergence of a variety of social forces directly affecting our economy have resulted in one of our greatest potential crises--mass unemployment. One cannot overestimate the social significance of labor force trends which made obsolete both manual and white-collar skills and which increasingly demand greater educational requirements of all types of workers. Nor can one overestimate those social forces which have brought about a huge population bulge, the increasing proportion of women entering the labor market; and the millions of youths who, because of inadequate education or training, find themselves hopelessly ill-equipped to obtain any type of work.

The consequences of such trends need not be elaborated upon; the waste of manpower is apparent. The increased social waste of indigent millions, the social costs of deteriorated neighborhoods with their poverty, disease, and crime, and lack of social identity of the unemployed and hopeless is inestimable. Projections of contemporary trends into the future provide little cheer. Unless some of the basic problems of providing employment for the new youthful and older displaced workers, the relatively poorly educated, and the socially and psychologically underprivileged are met, the resultant social dislocation may increase enormously.

A world which rapidly makes obsolete many types of specialized skills, traditionally acquired through vocational education or apprenticeship--one in which the lower manual and office skills are rapidly losing their value in the labor market--forces a close examination and evaluation of current vocational education. In fact, the local communities are finding the burden of adequately preparing youth for occupational roles increasingly difficult. So many variables which directly affect the employment of workers lie beyond the local school district and the local economic scene. It has become apparent to those studying contemporary labor market trends and contemporary vocational education practices that new and broader approaches to the training of youth are needed.[1]

To take a place successfullly in the labor market today, one needs more education and training than ever before. The wave of the future is projecting us into a world in which low-level skills have little utility. Can the schools meet these problems? How shall they be met?

From the point of view of a single school district or even a broader region, forces making for economic and social change seem beyond control. But the macroscopic end-product, the nature of the economy, its regional distribution, the distribution and movements of populations, and the changing age composition of the population can be rationally analyzed and predicted. It is only on the basis of the knowledge of such forces that the adequate vocational preparation of youth can take place at the national, state, or local levels.

How does one go about meeting the challenges to vocational education? The first task is identifying the nature of the challenge and the direction of the forces which are creating burdens on vocational education. In essence, the problems facing vocational education stem from these major sources: changes in the industrial complex and the structure of the labor force, making for redistributions in types of training and skill demands; the mobility patterns characteristic of the United States in which populations tend to move from areas with limited economic opportunities to areas with greater economic opportunity; the changing age and sex composition of the entire labor force, but especially the increasing participation of women; and the forces of tradition which freeze educational practices

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*Written by Sigmund Nosow, Michigan State University who carried out the research while on loan to the Project from the Michigan State University School of Labor and Industrial Relations, which also provided funds toward the support of the curriculum evaluation section of the Project.

[1]See, for Example, U. S. Department of Health, Education, and Welfare, Office of Education, "Vocational Education in the Next Decade," Washington, D. C., 1961.

and curricula into given institutional molds, with control vested to the greatest extent in the local communities. Perhaps of equal importance is the challenge to the local school districts to keep in school and give adequate vocational training and guidance to that one-third of the students who comprise the annual dropouts.

It is apparent that the responsibilities for providing adequate training and job opportunities both for those capable and incapable of completing high school-level work transcend most local communities. The continuous upgrading of the educational quality of the labor force which has characterized American industry, at least during this century, has gained momentum. This makes it extremely difficult to place in the labor market the poorly educated millions seeking work each year.

The task we have set for ourselves is based on an effort to relate current vocational education in Michigan to the principal trends affecting the employment of the youth of the state.* What employment opportunities are going to be available in Michigan in the future? What proportion of the population is going to be seeking employment? What is the likelihood that youths are going to remain in their local communities seeking employment? To what extent do local vocational education programs meet current or future needs of the youths of these communities?

While many of the patterns for Michigan may be unique, the emergent needs in the state reflect broader tendencies in the United States. While many of the needs of local communities are a reflection of their own unique history and situation, they, too, reflect the broader patterns of the state and nation.

The number of excellent studies which have projected manpower needs for the next decade and beyond, both for the United States and for Michigan, present us with a body of data based upon past statistics and the seasoned judgments of experts concerning future trends.[2] All of these studies agree on a number of basic trends:

1. The proportion of the population in the labor force will increase.

2. The proportion of women in the labor force will increase.

3. The labor force is going to consist increasingly of younger workers, with a relative decline in the number of workers in all other age groups, especially the middle-age groups. Women, age 45 and over, will be the exception to this trend.

4. The absolute number of farmers, farm managers, and farm laborers will decline. The absolute number of laborers will remain the same. While there will be some increases in the number of craftsmen and other blue-collar skilled workers, their proportions in the labor force will decline.

5. The rapid rate of growth among the white-collar workers in the labor market will continue, with the greatest increase among the professional and technical groups.

6. Shifts in the percentage of employment by industry are going to show great relative declines in the commodity-producing industries such as agriculture, mining, and manufacturing, and large increases in the areas of trade, services and, to a lesser extent, governmental employment, and construction.

7. The labor market will place increasing demands upon workers for better education. It appears from current trends that even high school graduates without adequate vocational preparation will find it difficult to get jobs. Those with less than high school education (the one-third of the youths who drop out before graduation) are going to have even more difficulty in finding employment.

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*We recognize the vocational needs of adults, but the focus of the report is on youth.

[2]U. S. Department of Labor, "Manpower Challenge of the 1960's," Washington, D. C.: U. S. Government Printing Office, 1960; Michigan Employment Security Commission, "Manpower in Michigan," Detroit, Michigan" Michigan Employment Security Commission, 1962; U. S. Department of Labor, "Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training," Washington, D.C.: U. S. Government Printing Office, 1963; U. S. Department of Labor, Office of Manpower, Automation and Training, "Manpower and Training: Trends, Outlook, Programs," Washington D.C.: U. S. Government Printing Office, 1963; W. Haber, et. al., The Michigan Economy, Kalamazoo, Michigan: The W. E. Upjohn Institute for Employment Research, 1959; National Planning Association," National Economic Projection Series, 1962 edition," National Planning Association Washington, D.C., 1962; S. Cooper, "Special Labor Force Report No. 24, Interim Revised Projections of U. S. Labor Force, 1965-75," Washington, D. C.: U. S. Government Printing Office, 1962.

8. Population shifts will continue to reflect the changes in industrial concentration which have been occurring over the past decades. The fastest growing areas will continue to be the Far West and the Southwest. Patterns of migration from one region to another, and the movement of populations from the rural to industrial urban areas will continue to reflect the high mobility of Americans and the likelihood that youths shall migrate from the communities in which they have been reared and educated. Over the next decade, Michigan will continue to grow above the national average and also reflect similar patterns of rural-urban migration.

Growth of the Labor Force

Historically, the United States, more than any other country over the same period, has enjoyed consistently great growths in population and in the size of its labor force. This has been paralleled by a dynamic economy which has become second only to the United Kingdom in proportionate smallness of the population in agricultural activity, moving from a labor force in 1820 which was 71.8 per cent agricultural to one which in 1960 was only 7.9 per cent agricultural. During the same period, the population in the United States, which was 10.8 per cent urban in 1820 and 25.7 per cent urban in 1870, by 1960 was more than 63.0 per cent urban.*

While the trends over recent decades may not continue at the same rate, it is felt that by 1970 agricultural workers will constitute 5.3 per cent of the labor force, and by 1975, 4.5 per cent. By 1975, the urban population should approach 75 per cent of the total population under the new definition.[3]

Over the past century and a half, marked changes have also taken place for the labor force generally. It has grown from 21.9 per cent of the total population in 1820 to 40.4 per cent of the total population in 1960. From 1870 to the present, the participation rates, that is the percentage of persons who are labor force age entering the labor force,** have not changed radically. From the relatively stable rates between 1920 and 1940, there was a rise to 58.3 per cent by 1950. As may be observed in Table 1, the rates are expected to level off at about 57 per cent, at least for the near future.

Among other significant changes apparent in these participation rates are the consistently increasing rates of female participation in the labor force. This is perhaps the best criterion of what has been taking place in women's social roles in our society. The projections for the future indicate a continuation of these participation trends for women, although there is expected to be a decline in the participation rates of males.

There were 66.7 million employed persons in the civilian labor force in 1960 and 3.9 million unemployed, an unemployment rate of 5.6 per cent. If we accept as a goal for 1970 a full-employment economy, assuming 3 per cent or fewer unemployed, we would have to provide approximately 83 million jobs. Assuming that the 2.5 million now in the Armed Forces would remain at the same level, we would have to provide more than 13 million new jobs. This level can be reached only if the economy achieves a more dynamic growth rate and if the labor force achieves higher levels of education and training. If the economy were to achieve a full-employment level, many persons not now in the labor force might enter, making the potential job needs greater than the 13 million suggested above.

Growth patterns which have characterized the United States generally have also been reflected in Michigan. (See Table 2) During the present century, the percentage of the Michigan population in the labor force has been relatively constant. From 37.2 per cent of the population in the labor force in 1900, it rose to 37.6 per cent by 1960.

The declining importance of agriculture to Michigan's economy is also very apparent. From an experienced labor force with 43.8 per cent in agricultural activity in 1880, and 34.5 per cent in agricultural activity by 1900 (a more accurate figure than earlier census figures), by 1960 agricultural activity in Michigan only involved about 3 per cent of the experienced civilian labor force, and 3.4 per cent of the employed workers.

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*This was under the old definition used until 1950. Under the more liberal definition used since 1950, the rate was 69.9 per cent urban.

**Until the 1940 census this included children 10 years old and over. Starting in 1940, this included children 14 years old and over.

[3]D. J. Bogue, The Population of the United States, Glencoe, Illinois: The Free Press, p. 784.

Table 1

THE WORK FORCE IN THE UNITED STATES, 1870-1960,
AND PROJECTIONS FOR 1965-1975

Year	Gainful[1] workers (thousands)	Labor Force[2] (thousands)	Percent of total population	Percent of workers female	Participation rate		
					Total	Male	Female
1870.....	12,925	12,557	31.5	14.8	51.5	86.2	15.5
1880.....	17,392	16,896	33.7	15.2	52.5	87.3	16.3
1890.....	23,318	22,653	36.0	17.2	54.2	87.3	19.2
1900.....	29,073	28,282	37.2	18.1	55.0	87.7	20.4
1910.....	37,371	...	...	...	...	...	...
1920.....	42,434	42,660	38.7	20.4	55.8	85.9	24.1
1930.....	48,830	50,080	39.5	22.0	54.6	83.4	25.1
1940.....	...	56,030	42.5	25.3	55.9	83.9	28.2
1950.....	...	64,599	42.7	28.9	58.3	84.4	33.1
1960.....	...	73,081	40.4	32.2	57.4	79.7	36.1
1965.....	...	78,936	40.6	33.5	57.1	77.9	37.3
1970.....	...	85,703	42.7	34.3	57.0	77.1	38.0
1975.....	...	93,031	(3)	34.5	57.0	76.9	38.2

1 The reporting of gainful workers under 20 years of age prior to 1930 was highly unreliable. The report for 1910 generally shows wide discrepancy with that for 1900 and 1920 and questions of reliability have also been raised. For a critical discussion of labor force trends and statistics to 1940 see J. Durand, The Labor Force in the United States, 1890-1960, New York; Social Science Research Council, 1948, especially Appendix A, pp. 191-218.

2 The data since 1940 are not strictly comparable with previous labor force data since the concept of "gainful worker" was replaced with a different definition of "labor force." Gainful workers did not include workers without previous experience. A number of other changes were made in the 1940 census, among these was the decision only to enumerate persons 14 years and over, rather than 10 years and over as previously.

3 Not available.

Sources: For 1870-1950, D. J. Bogue, The Population of the United States, Glencoe, Ill., The Free Press, 1959, Table 16-1, p. 423. For 1960 and projections to 1975, S. Cooper, "Interim Revised Projections of the U.S. Labor Force, 1965-1975," Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., 1962, Tables 1 and 2, pp. 2-4.

Table 2

THE WORK FORCE IN MICHIGAN, 1900-1960,
AND PROJECTIONS TO 1970

Year	In labor force or gainful workers 14 years and over[1] (thousands)	Percent of total population	Percent of workers female	Participation rate		
				Total	Male	Female
1900.....	900	37.2	14.7	53.1	87.0	16.3
1910.....	1,109	39.5	16.4	54.6	87.2	19.1
1920.....	1,471	40.1	16.7	55.9	87.4	19.9
1930.....	1,926	39.8	18.7	54.6	84.6	21.5
1940.....	2,126	40.4	21.5	52.7	80.5	23.3
1950.....	2,541	39.9	25.3	53.8	80.2	27.5
1960.....	2,944	37.6	30.3	55.0	78.3	32.7
1970.....	3,750	39.1	32.0	56.7	77.1	37.0

[1] See Table 1.

Sources: For 1900-1940, U.S. Bureau of the Census, U.S. Census of Population: 1940, Characteristics of the Population, Michigan, 2nd Series. U.S. Government Printing Office, Washington, D.C., 1942. For 1950-1960, U.S. Bureau of the Census, U.S. Census of Population: 1960, General Social and Economic Characteristics, Michigan. Final Report PC (1) - 24C. U.S. Government Printing Office, Washington, D.C., 1962.
For the 1970 projections, population projections for Michigan and for those age groups in the labor force were taken from J.F. Thaden, Population of Michigan Counties, Projections to 1970, Institute for Community Development, Technical Bulletin B-24 Continuing Education Service Michigan State University, 1962. Assumptions were made that the participation trends for the 1960-1970 decade would follow those manifested over the 1940-1960 period used as a base. It was also assumed that basic demographic patterns such as growth for the state, marital status of population, proportions of youths in schools would not depart radically from those of the past decade. These figures are similar to those of Dr. Haber and of the M.E.S.C.; the basic differences arise from different projections of the size of the population, of which Thaden's is 9.6 million.

	Population for 1970	Labor Force	%
Haber*	9.9 (medium pro.)	3.8	38.5
M.E.S.C.**	9.4	3.7	39.4

*W. Haber et al, The Michigan Economy, Kalamazoo, Michigan, the W. E. Upjohn Institute for Employment Research, 1959.

**Michigan State Employment Security Commission, Manpower in Michigan, Michigan Employment Security Commission, 1962.

The degree of urbanization for Michigan also reflects the national patterns. In 1820, Michigan territory was considered to be 100.00 per cent rural. By 1870, Michigan was 20.1 per cent urban, becoming more urbanized than the United States as a whole by 1910. In 1960, Michigan was 65.0 per cent urban under the old definition, and 73.3 per cent under the new, more urbanized than the national average, and the 16th most urbanized state.

If the trends for the past decade are continued, the urban population of Michigan should be more than 76 per cent of the state's population by 1970. The significance of the increasing patterns of urbanization to the labor force and especially to the occupational structure will be discussed at a later point. However, in passing, we might note that urbanization has always been directly associated with increasing levels of trade and service employment and decreasing levels of agricultural employment.[4]

The participation rates for the Michigan labor force are not dissimilar from those of the nation as a whole. This is especially true if one looks at the entire labor force. If we examine male and female participation rates separately, we find that the male rates have been somewhat higher than the national averages until 1940, and then dipped below. The female participation rates consistently have been below the national averages. However, if the trends of the past two decades continue, by 1970 both male and female rates should approach the national rate, since the rates of participation to a great extent reflect the industrial structure and employment opportunities.

Michigan has had a very heavy concentration of manufacturing industry throughout the 20th century, especially in durable goods, with the largest concentration in automobile manufacture. The proportional declines in manufacturing and the increases in non-commodity employment which open up new employment opportunities for white-collar workers, help to explain some of the changing patterns in Michigan and the projections for the future.

Comparing future growth with employment for 1960, there will be a need for approximately 900,000 new jobs over the decade.* Of this increase more than 45 per cent will constitute white-collar jobs**

Age and Sex Characteristics of the Labor Force

The outlook for future employment rests largely on the age and sex distributions for the population, since the size of the labor force is a function of participation rates of various segments of the population. Projections of the size and characteristics of the labor force from this decade to 1975 show the continuance of a very significant trend, the increasing participation of women in the labor market. Perhaps the most striking trend of the current decade is the increasing number of young workers entering the labor force.[5]

In 1900, one-fifth of all women 14 years and older were in the labor force. By 1960, the figure had risen to 36.1 per cent. The projected figures for 1975 anticipate a steady increase in the proportion of women in the labor force to 38.2 per cent of the female population 14 years old and older. (See Table 3).

Starting in the decade of the sixties, increasing millions of new young workers in the labor force have made the problems of maintaining a full-employment economy even more difficult. The expectation that the total population between 14 and 24 years of age will increase by more than 46.5 per cent between 1960 and 1970, and by more than 59.8 per cent between 1960 and 1975, shows why communities are facing increasing burdens of preparing youths for employment and in providing jobs for them.

The increases in the number seeking work from these age groups will approximate 6 million by 1970 and 8 million by 1975. Whereas the 14-24-year-old group comprised but 18.7 per cent of the

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[4]Cf. P. A. Sorokin, C. C. Zimmerman, and C. J. Galpin, A Systematic Source Book in Rural Sociology, Vol. 1, Minneapolis: The University of Minnesota Press, 1930, pp. 186, 239-241; N. P. Gist and L. A. Halbert, Urban Society, New York: Thomas Y. Crowell Co., 1938, pp. 3-4.

*Assuming full-employment (3% of labor force unemployed).

**See pp. 83-84.

[5]S. Cooper, op. cit., p. 10.

Table 3

Labor Force Participation Rates by Age and Sex for the United States and Michigan 1940, 1950, 1960, and Projections for 1965, 1970, and 1975

Age and Sex	Labor Force Participation Rates, (per cent)								
	United States						Michigan		
	1 1940	1 1950	2 1960	2 1965	2 1970	2 1975	3 1940	3 1950	3 1960
Both Sexes									
14 years and over	52.2	53.4	57.4	57.1	57.0	57.0	52.7	53.7	55.0
14 to 24 years	44.1	45.7	50.2	49.4	49.7	50.0	44.5	46.1	44.4
25 to 34 years	63.7	61.0	65.8	66.2	66.7	67.1	62.4	60.2	62.9
35 to 44 years	60.8	64.2	69.3	70.6	71.5	72.0	60.8	63.1	67.3
45 to 64 years	55.1	58.2	66.6	68.1	68.9	69.2	55.9	58.4	64.8
65 years and over ...	23.3	23.6	20.3	18.3	17.4	16.8	23.6	29.9	17.2
Male									
14 years and over	79.0	78.9	79.7	77.9	77.1	76.9	80.5	80.2	78.3
14 to 24 years	57.8	59.1	63.5	61.9	62.2	62.4	57.6	59.0	56.3
25 to 34 years	95.2	92.1	96.4	96.2	96.2	96.2	95.9	93.0	95.4
35 to 44 years	94.7	94.5	96.4	96.7	96.7	96.7	95.7	94.7	96.2
45 to 64 years	88.7	88.2	90.4	90.7	90.6	90.3	90.2	89.3	90.7
65 years and over ...	41.5	41.5	32.2	28.2	26.4	25.4	42.2	42.0	26.2
Female									
14 years and over	25.4	29.0	36.1	37.3	38.0	38.2	23.3	27.5	32.7
14 to 24 years	30.5	32.5	36.7	36.5	36.8	37.2	31.3	33.6	35.5
25 to 34 years	32.9	31.8	35.8	36.8	37.5	38.0	28.7	29.3	33.2
35 to 44 years	26.9	35.0	43.1	45.5	47.0	47.9	22.8	31.8	40.5
45 to 64 years	19.8	28.8	43.8	46.7	48.8	49.7	16.5	25.4	40.1
65 years and over ...	5.9	7.8	10.5	10.5	10.5	10.5	5.1	7.0	9.8

Sources: 1

U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, U.S. Summary. Final Report PC (1) - 1C. U.S. Government Printing Office, Washington, D.C., 1962.

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S. Cooper, "Interim Revised Projections of U.S. Labor Force, 1965-75, "Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, 1962. The discrepancy between these data and those from the 1960 Census arises from allowances for population change between April 1, 1960 and July 1, 1960 and the inclusion of Armed Forces abroad, as well as from different sampling procedures between the census and the current population survey.

3

U.S. Bureau of the Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1) - 24C. U.S. Government Printing Office, Washington, D.C., 1962.

labor force in 1960, it will exceed 23 per cent in 1970-75. (See Table 4). The proportions of the total labor force of all age groups over 25, male and female, with the exception of women 44 years and older, will decline. However, there will be sizeable declines in actual numbers only for men aged 35-44 and 65 and over.

The actual rates of participation among the various age groups, especially for those in the 14-24 category, are not expected to change or the problems of employment would be compounded. (See Table 4). Actually, the greatest changes in participation rates are to be among women 25 years old and over. More women are either returning to the labor force or entering it for the first time after they have had their children. The emergent industrial structure which emphasizes trade and services is providing the types of opportunities ideally suited to this situation.

Although similar to the nation, Michigan does differ in some particular details regarding present and projected age and sex distributions of its labor force. The change in the sex distribution of the labor force is going to be more dramatic for Michigan than for the nation as a whole. This is accounted for by the lower participation rates for women in Michigan which have been discussed above. If current trends continue, total participation rates both male and female should be approximately 56.2 per cent by 1970. Participation rates for women, if they follow the trends over the past two decades, should be 38.6* per cent and the women as a proportion of the labor force should be greater than 34 per cent.

Between 1960 and 1970 there will be an increase in the youthful population in Michigan of more than half a million between the ages 14 and 24 or an increase of more than 55 per cent. If we assume that their participation in the labor force is to be at about the same rate as currently, there will be an increase in the labor force of at least 275,000 youthful workers. If we were to project increasing rates of participation based on the trends between 1940 and 1960, this figure would approximate the 300,000 suggested by the M.E.S.C.**

Whether one uses conservative or liberal estimates, the seriousness of the rise in youthful job aspirants and the critical problems posed for local communities are evident. The pressures on educational institutions to provide the kinds of training which may allow this tremendous bulge of young workers to be absorbed into the labor market cannot be denied.

More favorable to Michigan's employment picture will be the fact that the marked increase in youthful workers aged 14-24 will be offset almost completely during the coming decade by the decline in workers, male and female, in the 35-44 age group. (See Table 5). While there will be some decline in the 25-34 age group, there will be practically no change for those over 45 years old.

Trends in Occupational and Industrial Distribution

We have indicated some of the basic labor force trends and some of the expectations regarding the nature and size of the population which is going to comprise the labor force over the next decade. What types of training should persons receive if they are to be successful in their pursuit of employment? The only way one can clearly define the adequacy of vocational education or vocational preparation is to ask whether such training prepares workers to take the types of jobs which are available. This means that one must anticipate the occupational and industrial trends which make for particular types of employment. Knowledge about the labor market offers little help if training facilities, techniques and administration are inadequate. The educational experience which should be offered to meet these emergent needs is beyond the scope of this report.

To those studying the shifts in occupational distribution, the outstanding trend over the decade of the 1950's was "the much faster growth of white-collar (professional, managerial, clerical, and sales) than manual (craftsmen, operatives, and laborers) occupations."[6] This was a continuation of a long-term trend, from the turn of the century, in the employment of white-collar workers.

*Probably the 38.0 per cent shown in Table 2 is more likely.

** The Michigan Employment Security Commission projects an increase in this age group of 60.0 per cent or almost 300,000, although the projection of this age group presents them as constituting 21.6 per cent of the labor force. Discrepancies among the various statistics presented here and elsewhere in the report arise through a number of sources. Much of the current labor force data comes from the monthly sample survey by the Bureau of Labor Statistics and is presented in its "Monthly Report on the Labor Force." Population statistics are also based on sub-samples gathered during the intercensal periods found in Current Population Reports. Census data are based on labor force activity in a specific week during the census year. Much of the data gathered by the Bureau of Labor Statistics is reported in terms of annual averages, which run higher than the census reports of the labor market behavior for the same years.

[6]M. Rutzick and S. Swerdloff, "The Occupational Structure of U. S. Employment, 1940-60," Monthly Labor Review, November 1962, p. 1209.

Table 4

Distribution of the Total Labor Force, by Age and Sex, Annual Averages, Actual 1950, 1960 and Projected 1970 and 1975

Age and Sex	Actual		Projected	
	1950	1960	1970	1975
Both Sexes				
14 years and over	100.0	100.0	100.0	100.0
14 to 24 years	20.6	18.7	23.2	23.4
25 to 34 years	23.4	20.7	19.5	22.4
35 to 44 years	21.8	23.0	19.3	17.4
45 to 64 years	29.5	33.0	34.0	32.8
65 years and over ..	4.7	4.6	4.1	4.0
Male				
14 years and over	71.2	67.8	65.7	65.5
14 to 24 years	13.4	11.9	14.7	14.8
25 to 34 years	17.1	15.0	14.0	16.0
35 to 44 years	15.4	15.7	12.8	11.6
45 to 64 years	21.5	21.9	21.5	20.5
65 years and over ..	3.8	3.3	2.7	2.6
Female				
14 years and over	28.8	32.2	34.3	34.5
14 to 24 years	7.2	6.8	8.5	8.6
25 to 34 years	6.3	5.7	5.5	6.3
35 to 44 years	6.4	7.3	6.4	5.9
45 to 64 years	8.0	11.1	12.5	12.3
65 years and over ..	.9	1.3	1.4	1.4

Source: S. Cooper, "Interim Revised Projections of U.S. Labor Force, 1965-75," Bureau of Labor Statistics Special Labor Force Report No. 24, Bureau of Labor Statistics, U.S. Government Printing Office, Washington, D.C., 1962.

Table 5

Distribution of the Labor Force in Michigan by Sex and Age for 1940, 1950, 1960 and Projections for 1970

Sex and Age	1940[1]	1950[1]	1960[1]	1970[2]
Both Sexes				
14 years and over	100.0	100.0	100.0	100.0
14 to 24 years	21.6	18.6	17.1	23.8
25 to 34 years	24.9	24.8	21.7	19.9
35 to 44 years	21.9	22.3	24.3	19.8
45 to 64 years	28.0	29.9	33.3	32.9
65 years and over ..	3.6	4.4	3.6	3.6
Male				
14 years and over.....	78.5	74.3	69.7	69.1
14 to 24 years	14.0	11.7	10.5	14.6
25 to 34 years	19.2	18.6	16.1	14.8
35 to 44 years	17.9	16.7	17.0	13.9
45 to 64 years	24.1	23.6	23.4	23.1
65 years and over ..	3.3	3.7	2.7	2.7
Female				
14 years and over	21.5	25.7	30.3	30.9
14 to 24 years	7.6	6.9	6.6	9.2
25 to 34 years	5.7	6.2	5.6	5.1
35 to 44 years	3.9	5.6	7.2	5.9
45 to 64 years	3.8	6.3	9.9	9.8
65 years and over ..	.7	.7	1.0	.9

Source: [1]U.S. Bureau of the Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington D.C., 1962.

[2]J.F. Thaden, Population of Michigan Counties, Projections to 1970, Institute for Community Development, Technical Bulletin B-24, Continuing Education Service, Michigan State University, 1962. The sex ratios for 1960 were used to derive the separate male and female projections for 1970.

As the data on employment indicate, in 1900 there were half as many white-collar workers as blue. (See Table 6). By 1956, the number of white-collar workers has surpassed the number of blue and this gap continues to increase. During this long-term period the greatest increase has been in clerical workers, mainly in stenographic, typing, and secretarial work, an elevenfold increase. Professional workers, second only to the clerical workers in rate of growth, increased more in the newer fields than in the traditional ones, and this trend also is continuing.[7]

Table 6

Occupational Composition of the Non-Farm Labor Force,[1] 1900 and 1950

Occupation Group	Per cent distribution 1900	1950	Per cent change in labor force 1900-1950
All occupations	100	100	187
White-collar workers	28	42	322
Professional, technical, and kindred workers	7	10	312
Managers, officials, and proprietors	9	10	204
Clerical and kindred workers	5	14	725
Sales workers	7	8	216
Blue-collar workers	57	47	133
Craftsmen, foremen and kindred workers	17	16	173
Operatives and kindred workers	21	23	233
Laborers	20	8	7
Service workers	15	12	135
Private household workers	9	3	-2
Service workers, excluding private household	6	9	343

[1]The data for 1900 included all persons 10 years of age and over reporting a non-farm occupation in the census; those for 1950, all persons 14 years of age and over who were employed in a non-farm occupation during the week preceding the census and those unemployed whose last occupation was non-farm, i.e., the non-farm labor force.

Source: C. A. Barry. "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, Table 1, p. 12.

During the past decade, white-collar workers increased by nearly 28 per cent in contrast to the 6 per cent increase in manual workers. (See Table 7). In 1950, manual workers constituted 40.3 per cent of the work force in the United States, while white-collar workers constituted but 37.4 per cent. By 1960 they comprised 43.3 per cent of the employed civilian labor force, while manual workers constituted but 38.6 per cent. The long-term decline in agricultural workers continued during this decade, so that by 1960 the number of farm workers had declined to 6.4 per cent of the work force.

The fastest growing major occupational group during the 1950's was the professional, technical, and kindred workers, whose employment increased four times as fast as total employment and three times as fast as total non-agricultural employment.[8] The largest single percentage increase in this group

[7]Ibid., p. 1210; also C. A. Barry, "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, pp. 12 ff., also, U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 26.

[8]Rutzick and Swerdloff, loc. cit.

DISTRIBUTION OF EMPLOYED CIVILIAN WORKERS, BY OCCUPATIONAL GROUPS AND SELECTED OCCUPATIONS, UNITED STATES,[1] 1940, 1950, AND 1960

Occupation groups and selected occupations	1960		1950		1940		Percent increase	
	Number	Percent	Number	Percent	Number	Percent	1940–50	1950–60
All employed persons	64,639,247		56,435,273		45,070,315		25.2	14.5
Persons with occupations reported	61,455,572	100.0	55,692,340	100.0	44,651,964	100.0	24.7	10.3
White-collar workers	26,587,834	43.3	20,819,314	37.4	14,676,255	32.9	41.9	27.7
Professional, technical, and kindred workers	7,232,410	11.8	4,921,272	8.8	3,579,585	8.0	37.5	47.0
Engineers, technical [4]	853,738	1.4	519,680	.9	275,544	.6	88.6	64.3
Chemical	41,026	.1	32,543	.1	(2)	(2)	(2)	26.1
Civil	155,173	.3	125,125	.2	(2)	(2)	(2)	24.0
Electrical	183,887	.3	105,887	.2	(2)	(2)	(2)	73.7
Industrial	97,488	.2	40,278	.1	(2)	(2)	(2)	142.0
Mechanical	158,188	.3	112,440	.2	(2)	(2)	(2)	40.7
Sales	56,836	.1	24,734	(3)	(2)	(2)	(2)	129.8
Natural scientists	149,330	.2	116,918	.2	(2)	(2)	(2)	27.7
Biological scientists	13,937	(3)	9,215	(3)	(2)	(2)	(2)	51.2
Chemists	83,420	.1	74,337	.1	(2)	(2)	(2)	11.8
Mathematicians	7,527	(3)	1,691	(3)	(2)	(2)	(2)	345.1
Physicists	13,941	(3)	7,422	(3)	(2)	(2)	(2)	87.8
Medical and other health workers	1,305,901	2.1	1,007,515	1.8	(2)	(2)	(2)	29.6
Dentists	83,003	.1	75,355	.1	(2)	(2)	(2)	10.2
Dietitians and nutritionists	26,119	(3)	22,474	(3)	(2)	(2)	(2)	16.2
Nurses, student professional and professional	639,719	1.0	476,647	.9	(2)	(2)	(2)	34.2
Physicians and surgeons	228,926	.4	192,520	.3	(2)	(2)	(2)	18.9
Technicians, medical and dental	138,162	.2	76,662	.1	(2)	(2)	(2)	80.2
Teachers, elementary and secondary schools	1,521,590	2.5	1,042,809	1.8	(2)	(2)	(2)	45.9
Other professional, technical, and kindred workers	3,401,351	5.5	2,234,350	4.0	(2)	(2)	(2)	52.3
Accountants and auditors	471,302	.8	378,055	.7	(2)	(2)	(2)	24.7
Lawyers and judges	212,408	.3	181,646	.3	(2)	(2)	(2)	16.9
Technicians, electrical and electronic	91,463	.1	11,738	(3)	(2)	(2)	(2)	679.2
Technicians, other engineering and physical science	183,609	.3	90,995	.2	(2)	(2)	(2)	101.8
Managers, officials, and proprietors, except farm	5,409,543	8.8	5,036,808	9.0	3,633,656	8.1	38.6	7.4
Salaried	3,387,918	5.5	2,508,984	4.5	(2)	(2)	(2)	35.0
Self-employed	2,021,625	3.3	2,527,824	4.5	(2)	(2)	(2)	−20.0
Clerical and kindred workers	9,306,896	15.1	6,954,440	12.5	4,382,300	9.8	58.7	33.8
Secretaries, stenographers, and typists [4]	2,178,641	3.5	1,507,649	2.7	990,157	2.2	52.3	44.5
Other clerical workers	7,128,255	11.6	5,446,791	9.8	3,392,143	7.6	60.6	30.9
Cashiers	468,950	.8	231,382	.4	(2)	(2)	(2)	102.7
Office-machine operators	307,828	.5	142,350	.3	(2)	(2)	(2)	116.2
Sales workers	4,638,985	7.5	3,906,794	7.0	3,080,714	6.9	26.8	18.7
Retail trade	2,694,745	4.4	2,449,760	4.4	(2)	(2)	(2)	10.0
Other than retail trade	1,944,240	3.2	1,457,034	2.6	(2)	(2)	(2)	33.4
Insurance agents, brokers, and underwriters	364,557	.6	272,603	.5	(2)	(2)	(2)	33.7
Real estate agents and brokers	193,104	.3	141,003	.3	(2)	(2)	(2)	37.0
Salesmen and sales clerks, manufacturing	464,770	.8	328,084	.6	(2)	(2)	(2)	41.7
Manual workers	23,746,463	38.6	22,437,059	40.3	16,394,204	36.7	36.9	5.8
Craftsmen, foremen, and kindred workers	8,741,292	14.2	7,820,634	14.0	5,171,394	11.6	51.2	11.8
Foremen (not elsewhere classified) [5]	1,096,658	1.8	777,266	1.4	485,214	1.1	60.2	41.1
Construction craftsmen [5]	2,404,323	3.9	2,354,906	4.2	(2)	(2)	(2)	2.1
Brickmasons, stonemasons, and tile setters	185,909	.3	165,981	.3	(2)	(2)	(2)	12.0
Carpenters	818,835	1.3	918,753	1.6	(2)	(2)	(2)	−10.9
Electricians	337,147	.5	311,251	.6	(2)	(2)	(2)	8.3
Mechanics and repairmen [5]	2,197,193	3.6	1,708,812	3.1	831,125	1.9	105.6	28.6
Air-conditioning, heating, and refrigeration equipment	61,997	.1	43,639	.1	(2)	(2)	(2)	42.1
Automobiles	682,103	1.1	654,350	1.2	(2)	(2)	(2)	4.2
Office machines	29,262	(3)	31,023	.1	(2)	(2)	(2)	−5.7
Metal craftsmen, except mechanics [5]	1,099,835	1.8	1,095,683	2.0	932,962	2.1	17.4	.4
Boilermakers	23,754	(3)	35,645	.1	(2)	(2)	(2)	−33.4
Machinists	498,688	.8	514,696	.9	(2)	(2)	(2)	−3.1
Molders	48,929	.1	60,676	.1	(2)	(2)	(2)	−19.4
Toolmakers, and diemakers and setters	182,345	.3	152,658	.3	(2)	(2)	(2)	19.4
Other craftsmen	1,943,283	3.2	1,883,967	3.4	(2)	(2)	(2)	3.1
Locomotive engineers	56,630	.1	73,004	.1	(2)	(2)	(2)	−22.4
Locomotive firemen	37,087	.1	54,263	.1	(2)	(2)	(2)	−31.7
Operatives and kindred workers	11,897,636	19.4	11,180,315	20.1	8,079,922	18.1	38.4	6.4
Drivers and deliverymen	2,279,576	3.7	1,906,616	3.4	1,495,174	3.4	27.5	19.6
Other operatives, etc.	9,618,060	15.7	9,273,699	16.7	6,584,748	14.8	40.8	3.7
Laborers, except farm and mine	3,107,535	5.1	3,436,110	6.2	3,142,888	7.0	9.3	−9.6
Service workers, including private household	7,170,784	11.7	5,708,178	10.2	5,291,594	11.9	7.9	25.6
Service workers, except private household	5,444,958	8.9	4,297,018	7.7	3,200,341	7.2	34.3	26.7
Protective service workers [5]	662,133	1.1	564,414	1.0	499,721	1.0	25.5	17.3
Waiters, bartenders, cooks, and counter workers	1,717,083	2.8	1,328,018	2.4	927,842	2.1	43.1	29.3
Other service workers	3,065,742	5.0	2,404,586	4.3	1,822,778	4.1	31.9	27.5
Private household workers	1,725,826	2.8	1,411,160	2.5	2,091,253	4.7	−32.5	22.3
Agricultural workers	3,950,491	6.4	6,727,789	12.1	8,289,911	18.5	−18.8	−41.3
Farmers and farm managers	2,505,684	4.1	4,310,979	7.7	5,147,789	11.5	−16.3	−41.9
Farm laborers and farm foremen	1,444,807	2.4	2,416,810	4.3	3,142,122	7.0	−23.1	−40.2
Occupations not reported	3,183,675		742,933		418,351		328.5	661.0

1 1940 and 1950 adjusted to include Alaska and Hawaii.
2 Not available.
3 Less than 0.05 percent.
4 Female only; the comparatively few men recorded in this group are included in the total for the major occupational group.
5 Male only; the few women recorded in this group are included in the total for the major occupational group.

NOTE: Because of rounding, sums of individual items may not equal totals. Most totals include occupation not shown separately.

SOURCE: *United States Census of Population, 1960, United States Summary, General Social and Economic Characteristics, PC-1 Series*, table 89, and State reports on *Detailed Characteristics, PD-1 Series* for 50 States and the District of Columbia, table 120.

Source: M. Rutzick and S. Swerdloff, "The Occupational Structure of U.S. Employment, 1940-60," Monthly Labor Review, November 1962, p. 1211.

took place for technicians in the electrical and electronic fields. Teachers in elementary and secondary schools, who comprise the largest single professional group, also showed a very large increase during the decade.

Although clerical and sales employment has continued to increase at somewhat lower rates than in previous decades, this group still had an increase about three times greater than the increase for total employment. The largest increase for this group continues to be among secretaries, stenographers, and typists. Very large increases also took place in the number of cashiers and operators of business machines.

Sales workers increased by about 19 per cent. However much of the recent growth in the total number of sales workers is associated with increasing utilization of part-time workers in retail stores,[9] although the increases should diminish with the introduction of self-service devices.[10] It is among the non-retail sales workers such as wholesale trade, insurance, and real estate salesmen that the rate of growth has been greatest.

The growth in numbers of blue-collar workers continues but at a rapidly declining rate. Employment of craftsmen rose, but at 12 per cent below the average increase for total employment. A large proportion of the increase for this group came from the increases in craftsmen, foremen, and kindred workers. Within this group the largest increases were in the number of foremen, mechanics, and repairmen. While there was some increase in craftsmen in construction, metal craftsmen and other types of craftsmen showed marked declines. There was almost a 10 per cent decline in the number of non-farm laborers, so that by 1960 they comprised but 5.1 per cent of the total employed.

Service workers continue to show marked rates of increase, although somewhat lower than for the previous decade. The marked decline in private household workers during the decade of the 1940's was replaced in the 1950's by a marked increase. By 1960, service workers comprised almost 12 per cent of the entire employed labor force.

The increasing importance of white-collar work and the decline in blue-collar occupations rest essentially on the changing nature of our technology, and on the changing composition of American industry. Technological changes have reduced the number of operatives and laborers in manufacturing, mining, and other industries. Employment has risen rapidly in all of the service industries, public and private, providing increasing opportunities for white-collar workers. On the other hand, the growth rate of goods-producing industries has slowed down, providing fewer opportunities for blue-collar workers.[11] (See Table 8).

Production changes associated with greater uses of automated equipment are perhaps most familiar. However, the electronic data processing revolution in traditional white-collar office occupations is equally significant to employment trends. And to these one must add the changes which are being introduced into traditional retail trade areas, which provide self-service instead of employment for service workers.[12]

Even more startling is the increasing importance of white-collar workers in the manufacturing and service sectors of the economy. In Table 9 we see some of the changes which have taken place between 1952 and 1960 in the relative employment of white-collar and blue-collar workers in the various industries. In construction, manufacture of durable goods, and the service industries there are prominent increases in the number of white-collar workers over this eight-year period, while the employment of blue-collar workers in the same areas decreased (with the exception of the service industries), or increased at a lower rate.[13]

Recent Congressional hearings have described white-collar employment trends in selected industries emphasizing the radical changes taking place in occupational distribution.[14] For example, in the

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[9] Ibid., p. 1212.

[10] Loc. cit.

[11] U. S. Department of Labor, "Manpower Report of the President..." loc. cit.

[12] Vending machines are the most primitive form of self-service retailing. Department stores and supermarkets completely eliminating clerical help are now being contemplated seriously.

[13] Barry, op. cit., pp. 15-16.

[14] Committee on the Judiciary. Subcommittee No. 1. House of Representatives, Special Series No. 3, "Study of Population and Immigration Problems. Manpower in the United States with Projection to 1970," presented by Dr. S. L. Wolfbein, Washington, D. C.: U. S. Government Printing Office, 1962.

Table 8

CIVILIAN EMPLOYMENT BY MAJOR INDUSTRY GROUP AND AVERAGE ANNUAL RATES OF CHANGE
1947, 1957, 1976, and 2000

Major Industry Group	Employment (millions)				Average Annual Rates of Change			
	1947	1957	1976	2000	1947-57	1957-76	1957-2000	1976-2000
Agriculture.....	8.34	6.24	4.56	5.35	-2.9	-1.7	-0.4	1.3
Mining.....	0.87	0.69	0.68	0.60	-2.3	-0.1	-0.3	-0.5
Manufacturing.....	16.12	17.31	21.15	25.00	0.7	1.1	0.9	0.7
Utilities.....	0.62	0.69	0.99	1.20	1.1	1.9	1.3	0.8
Construction.....	2.85	3.62	6.20	7.40	2.4	2.9	1.7	0.7
Transportation.....	3.19	2.88	2.84	2.94	-1.0	-0.1	0.0	0.1
Communication.....	0.76	0.89	1.17	1.40	1.6	1.5	1.1	0.8
Trade.....	10.96	12.72	20.25	35.00	1.5	2.5	2.4	2.3
Finance and real estate..	1.86	2.55	3.48	5.00	3.2	1.7	1.6	1.5
Services.....	7.85	10.99	19.68	35.00	3.4	3.1	2.6	2.4
Government.....	4.41	6.38	9.10	16.21	3.8	1.9	2.2	2.4
Statistical discrepancy..	-0.02	0.05	---	---	---	---	---	---
Total.....	57.81	65.01	90.10	135.10	1.2	1.6	1.7	1.7

Source: Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportation, Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., 1962, Tables E-6 and E-6a.

Table 9

INDUSTRIAL DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT, BY MAJOR OCCUPATION GROUP, 1952 AND 1960

(Percent)

Occupation group	All industries	Construction	Manufacturing		Transportation and public utilities	Wholesale and retail trade	Service and miscellaneous[1]	All other[2]
			Durable goods	Nondurable goods				
White-collar workers:								
1952	100.0	2.9	9.3	8.4	7.5	33.2	30.2	8.5
1960	100.0	3.3	10.3	8.1	6.5	28.9	34.9	3.1
Blue-collar workers:								
1952	100.0	13.9	27.6	21.7	11.6	11.0	7.8	6.4
1960	100.0	13.9	27.1	21.6	11.3	12.7	9.3	4.2
Service workers, excluding private household:								
1952	100.0	.6	3.9	3.3	3.1	31.5	46.7	10.9
1960	100.0	.4	2.8	2.6	2.1	28.8	53.3	10.1
WHITE-COLLAR OCCUPATIONS								
Professional, technical, and kindred workers:								
1952	100.0	3.1	10.7	6.9	3.0	4.0	63.8	8.5
1960	100.0	2.7	13.0	6.6	4.0	3.2	63.1	7.3
Managers, officials, and proprietors:								
1952	100.0	5.6	6.6	7.4	6.0	50.7	18.6	5.1
1960	100.0	7.3	7.7	7.2	5.5	45.4	22.0	5.0
Clerical and kindred workers:								
1952	100.0	1.9	13.5	10.2	14.7	19.6	25.1	15.0
1960	100.0	2.1	12.9	9.6	11.8	17.7	31.5	14.5
Sales workers:								
1952	100.0	.3	2.7	8.0	.5	74.0	14.3	.2
1960	100.0	.3	4.1	8.6	.8	70.7	15.4	.1

[1]Includes finance, insurance, and real estate.
[2]Public administration, mining, forestry, and fisheries.

Note: Because of rounding, sums of individual items may not equal totals.

Source: C.A. Barry, "White-Collar Employment: I-Trends and Structure," Monthly Labor Review, February 1961, Table 3, p. 14.

automobile industry in 1951, white-collar workers constituted 16.7 per cent of all employees; in 1960 they constituted 21.8 per cent.[15] In agricultural implement manufacture, white-collar workers constituted 22.0 per cent of the employees in 1951 and 31.6 per cent in 1960. In the aerospace field, white-collar workers constituted 26.3 per cent of the labor force in 1951 and 41.7 per cent in 1960. In certain electronic plants, white-collar workers now outnumber blue-collar workers by two to one.

Projections for the coming decade and beyond suggest continuations of current trends. (See Table 10). Professional, technical, and kindred workers will show the greatest increases, with service workers not far behind. Somewhat smaller increases will continue for the other white-collar groups, with clerical workers outpacing both sales workers, and managers, officials, and proprietors, as a group.

Among the blue-collar workers, only the craftsmen and foremen will maintain their relative percentages in the labor force. All other groups will show proportionate declines. Farm workers and non-farm labor will continue their absolute and relative declines.

It is apparent that occupations with high educational requirements are going to offer the greatest employment opportunities.[16] This is clear from the continuing demand for professional and semi-professional workers. The demand for skilled technicians in the electronics, electrical equipment, chemistry, aircraft, paper and similar fields will be very high. In a recent survey it was found that between 1959 and 1960 "the rate of increase in employment of technicians was greater than that for engineers and scientists,"[17] although the ratio of technicians to scientists and engineers is lower than one to one.

There will evidently be a need for other white-collar workers, especially for office workers with typing and stenographic skills and the ability to operate office equipment. Service occupations which will continue in high demand are those found in food service and hospital work. Among the relatively unskilled there should remain an increasing demand for domestic service.

In the skilled trades there seems to be a continuing need for repairmen of all types, especially automobile mechanics, TV, radio, and appliance servicemen, business machine, air-conditioning, refrigeration, and instrument repairmen and mechanics, as well as all-around skilled tailors.[18] The largest group of manual workers will continue to be operatives and kindred workers. Of this group, drivers and deliverymen will continue to show the greatest gains for the coming decade.

As one might expect, historical changes in occupational structure in region and state have continued into the 1950's. How do the patterns of occupational change in the East North Central region, of which Michigan is a part, compare with the national patterns, and how do changes in Michigan compare with the national and regional trends?

The region as a whole reflected the same trends found for the entire country. However, the rates of growth are lower in all occupational categories in which there is growth, and the declines are less in all occupational groups in which there are declines, with the exception of farm laborers and farm foremen. (See Table 11). These growth patterns are reflected in the over-all occupational statistics which show that while the growth was 10.4 per cent for the entire country, the growth in the East North Central Region was only 7.9 per cent. The greatest rates of growth in the country are found in the Mountain and Pacific regions, in which employment increased by approximately one-third over the past decade.

Michigan is the only state in the East North Central region which showed a greater rate of growth over the 1950's than the national average, although the difference is minor. The growth in employment of professional and technical workers exceeded the national increase by 16.4 per cent, and the regional increase by 30.5 per cent. Increases in the managerial, official, and proprietor occupations, although 24.3 per cent greater than the national increases, were 460.0 per cent greater than the regional increases.

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[15] Ibid., p. 91

[16] C. A. Barry, "White Collar Employment: II - Characteristics," Monthly Labor Review, February 1961, pp. 144 ff.

[17] U. S. Department of Labor Bureau of Labor Statistics, "Scientific and Technical Personnel in Industry 1960," Washington, D. C.: U. S. Government Printing Office, 1961, pp. 15-17.

[18] U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 31.

Table 10

Employment in the United States by Major Occupational Group, 1960 to 1976

Major occupational group	Actual, 1960		Projected, 1970		Projected, 1976		Percent Change		
	Number (in millions)	Percent	Number (in millions)	Per cent	Number (in millions)	Per cent	1960-70	1970-75	1960-75
Total	66.7	100.0	80.5	100.0	87.6	100.0	21	9	31
Professional, technical, and kindred workers	7.5	11.2	10.7	13.3	12.4	14.2	43	16	65
Managers, officials, and proprietors, except farm	7.1	10.6	8.6	10.7	9.4	10.7	21	9	32
Clerical and kindred workers..	9.8	14.7	12.8	15.9	14.2	16.2	31	11	45
Sales workers	4.4	6.6	5.4	6.7	5.9	6.7	23	9	34
Craftsmen, foremen, and kindred workers	8.6	12.8	10.3	12.8	11.2	12.8	20	9	30
Operatives and kindred workers	12.0	18.0	13.6	16.9	14.2	16.3	13	4	18
Service workers	8.3	12.5	11.1	13.8	12.5	14.3	34	13	51
Laborers, except farm and mine	3.7	5.5	3.7	4.6	3.7	4.3	-------	-------	-------
Farmers, farm managers, laborers, and foremen	5.4	8.1	4.2	5.3	3.9	4.5	-22	-7	-28

Source: Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training, The United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

Table 11

Geographic Distribution of Employed Civilian Workers in All Occupations and in Major Occupation Groups United States, 1950, and 1960 (Percent)

Region and State	All occupations [1]		Professional, technical, and kindred workers		Managers, officials, and proprietors, except farm		Clerical and kindred workers		Sales workers		Craftsmen, foremen, and kindred workers	
	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950
Total, 51 States:												
Number	61,455,572	55,602,340	7,232,410	4,921,272	5,409,543	5,036,808	9,306,896	5,954,440	4,638,985	3,900,701	8,741,292	7,820,634
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England	6.2	6.4	6.7	7.0	5.9	6.3	6.6	7.1	6.1	6.6	6.7	7.0
Maine	.5	.6	.4	.5	.5	.5	.4	.4	.5	.5	.5	.5
New Hampshire	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4
Vermont	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
Massachusetts	3.1	3.3	3.6	3.8	2.9	3.2	3.5	3.9	3.2	3.5	3.2	3.5
Rhode Island	.5	.5	.4	.5	.4	.5	.5	.6	.5	.5	.0	.6
Connecticut	1.6	1.5	1.8	1.7	1.5	1.5	1.8	1.7	1.5	1.4	1.9	1.8
Middle Atlantic	20.1	21.0	21.5	23.5	20.1	22.9	23.3	25.5	20.7	21.5	20.4	22.4
New York	10.1	10.5	11.2	12.7	10.9	12.9	12.9	14.2	10.4	11.2	9.4	10.5
New Jersey	3.6	3.5	4.0	4.0	3.8	4.0	4.1	4.2	3.7	3.4	4.0	4.0
Pennsylvania	6.4	7.9	6.1	6.7	6.4	6.0	6.4	7.1	6.6	6.9	7.1	8.0
East North Central	20.6	21.0	19.7	20.4	18.4	19.6	21.0	22.5	20.6	21.1	22.4	23.6
Ohio	5.4	5.4	5.3	5.4	4.8	5.0	5.4	5.7	5.5	5.7	6.2	6.5
Indiana	2.7	2.7	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.6	2.9	3.0
Illinois	6.0	6.3	5.8	5.5	5.6	6.3	7.3	8.0	6.9	6.3	6.3	6.8
Michigan	4.3	4.2	4.3	4.1	3.7	3.7	4.1	4.3	4.4	4.3	4.8	5.0
Wisconsin	2.3	2.4	2.0	2.2	2.0	2.1	2.0	2.1	2.2	2.3	2.3	2.4
West North Central	8.7	9.5	8.0	8.7	8.6	9.2	8.0	8.6	8.7	9.5	7.5	8.0
Minnesota	1.9	2.0	2.0	2.0	1.9	2.0	1.8	2.0	2.0	2.1	1.7	1.8
Iowa	1.5	1.8	1.4	1.8	1.5	1.7	1.3	1.4	1.6	1.8	1.3	1.5
Missouri	2.4	2.7	2.1	2.4	2.3	2.3	2.5	2.3	2.5	2.8	2.2	2.3
North Dakota	.3	.4	.3	.3	.4	.4	.2	.2	.3	.3	.2	.3
South Dakota	.4	.4	.3	.4	.4	.4	.3	.3	.3	.4	.3	.3
Nebraska	.8	.9	.7	.8	.9	.9	.7	.8	.8	.9	.7	.7
Kansas	1.2	1.3	1.3	1.2	1.3	1.3	1.1	1.1	1.3	1.3	1.2	1.2
South Atlantic	14.0	13.5	12.7	11.9	13.7	11.8	12.4	11.4	13.5	12.3	13.1	11.9
Delaware	.3	.2	.3	.3	.2	.2	.3	.2	.3	.2	.3	.3
Maryland	1.7	1.6	2.1	1.8	1.7	1.6	2.1	1.9	1.8	1.6	1.9	1.8
District of Columbia	.5	.7	.7	1.0	.4	.5	.8	1.6	.3	.5	.3	.5
Virginia	2.1	2.0	2.1	1.9	2.0	1.8	2.0	1.9	2.0	1.8	2.0	1.9
West Virginia	.8	1.1	.8	.9	.8	.9	.6	.8	.9	1.0	.9	1.3
North Carolina	2.5	2.6	1.8	1.8	2.0	1.9	1.6	1.4	2.2	2.2	2.1	2.0
South Carolina	1.3	1.3	.9	.9	1.0	.9	.8	.6	1.1	1.1	1.1	1.0
Georgia	2.2	2.2	1.6	1.6	2.1	1.8	1.7	1.6	2.0	1.9	1.9	1.6
Florida	2.6	1.8	2.4	1.7	3.5	2.3	2.4	1.5	3.0	2.0	2.7	1.7
East South Central	6.1	5.8	4.8	5.0	5.4	5.2	4.4	4.3	5.5	5.5	5.5	5.2
Kentucky	1.5	1.7	1.2	1.2	1.3	1.3	1.1	1.2	1.4	1.4	1.3	1.4
Tennessee	1.9	2.0	1.6	1.6	1.7	1.6	1.5	1.5	1.8	1.8	1.7	1.7
Alabama	1.7	1.8	1.3	1.3	1.5	1.4	1.2	1.1	1.5	1.5	1.6	1.4
Mississippi	1.1	1.3	.8	.8	1.0	.9	.6	.6	.8	.8	.8	.7
West South Central	8.8	8.9	8.2	8.2	10.0	9.3	7.8	7.3	8.7	8.9	8.4	8.0
Arkansas	.9	1.1	.6	.8	.9	.9	.6	.6	.8	.9	.7	.7
Louisiana	1.6	1.6	1.4	1.4	1.7	1.5	1.3	1.2	1.4	1.4	1.4	1.3
Oklahoma	1.2	1.3	1.2	1.2	1.4	1.5	1.2	1.2	1.3	1.4	1.2	1.3
Texas	5.1	4.9	4.9	4.8	5.9	5.4	4.8	4.3	5.2	5.2	5.0	4.8
Mountain	3.7	3.1	4.0	3.4	4.4	3.5	3.4	2.7	3.5	3.0	3.7	3.0
Montana	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3
Idaho	.4	.4	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3
Wyoming	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
Colorado	1.0	.8	1.2	1.0	1.2	1.0	1.0	.9	1.0	.9	.9	.8
New Mexico	.5	.4	.6	.4	.6	.4	.4	.3	.4	.3	.5	.4
Arizona	.7	.4	.7	.5	.8	.5	.6	.4	.7	.4	.7	.4
Utah	.5	.4	.5	.5	.5	.4	.6	.4	.5	.4	.5	.5
Nevada	.2	.1	.2	.1	.2	.2	.2	.1	.1	.1	.2	.1
Pacific	11.9	9.8	14.2	11.9	12.6	12.1	13.0	10.8	12.7	11.6	12.3	10.7
Washington	1.6	1.5	1.8	1.7	1.8	1.7	1.6	1.5	1.6	1.7	1.7	1.7
Oregon	1.0	1.0	1.0	1.0	1.2	1.3	.9	.9	1.0	1.1	1.0	1.0
California	8.9	6.9	10.9	8.8	10.2	8.8	10.1	8.0	9.7	8.5	9.2	7.6
Alaska	.1	.1	.1	.1	.1	.1	.1	.1	.1	(2)	.1	.1
Hawaii	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.3

[1] Includes occupations reported only. See footnote 1, table 1.

[2] 1950 total adjusted to include Alaska and Hawaii.

Source: S. P. Manor, "Geographic Changes in U. S. Employment from 1950 to 1960," Monthly Labor Review, January 1963, pp. 6-7

Table 11 (con't)

Region and State	Operatives and kindred workers		Laborers, except farm and mine		Service workers, except private household		Private household workers		Farmers and farm managers		Farm laborers and farm foremen	
	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950	1960	1950
Total, 51 States: Number.	12,867,636	11,180,315	3,197,535	3,436,110	5,444,958	4,297,018	1,725,826	1,411,160	2,505,684	4,319,979	1,444,807	2,415,810
Percent.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England.	7.6	6.6	4.9	5.6	5.9	6.3	4.0	4.6	1.4	1.5	2.4	2.7
Maine	.7	.7	.7	.9	.5	.5	.5	.5	.3	.4	.5	.5
New Hampshire.	.5	.6	.3	.4	.3	.3	.3	.3	.1	.2	.2	.2
Vermont.	.2	.2	.2	.2	.2	.2	.3	.3	.4	.3	.5	.5
Massachusetts.	3.7	4.3	2.3	2.6	3.2	3.5	1.6	2.1	.3	.3	.6	.6
Rhode Island.	.7	.3	.4	.4	.5	.5	.2	.3	(2)	.1	.1	.1
Connecticut.	1.8	2.0	1.1	1.1	1.3	1.3	1.1	1.1	.2	.3	.5	.4
Middle Atlantic.	22.0	24.6	18.3	19.9	20.6	22.0	14.6	18.2	5.5	5.0	6.4	6.2
New York.	10.1	11.0	7.6	7.9	11.2	12.6	7.9	9.9	2.5	2.3	2.8	2.7
New Jersey.	4.1	4.3	3.0	3.1	3.2	3.2	2.3	2.9	.6	.5	.9	.9
Pennsylvania.	7.9	9.5	7.7	8.9	6.2	6.6	4.4	5.4	2.4	2.2	2.7	2.8
East North Central.	23.1	24.1	19.5	19.3	20.5	21.1	14.1	14.0	18.2	16.5	12.3	13.0
Ohio.	6.2	6.3	5.7	5.3	5.2	5.4	4.0	4.0	3.4	3.4	2.4	2.5
Indiana.	3.1	3.2	2.8	2.7	2.6	2.5	1.9	1.9	3.2	2.9	1.8	1.9
Illinois.	6.2	6.7	5.5	5.8	6.0	6.8	3.4	3.9	4.9	4.9	2.8	3.0
Michigan.	5.1	5.6	3.5	3.5	4.3	4.2	3.4	2.8	2.4	2.3	1.8	1.8
Wisconsin.	2.5	2.4	2.0	2.0	2.3	2.2	1.4	1.4	4.4	3.6	3.6	3.9
West North Central.	6.8	6.6	7.4	8.2	8.9	8.8	6.9	6.2	20.9	21.5	13.4	15.7
Minnesota.	1.5	1.4	1.5	1.6	2.0	2.0	1.6	1.2	5.3	4.9	2.5	3.5
Iowa.	1.2	1.2	1.3	1.5	1.6	1.6	1.2	1.2	6.3	4.8	3.2	3.4
Missouri.	2.3	2.4	2.3	2.5	2.4	2.6	1.8	2.1	4.3	4.1	2.4	2.9
North Dakota.	.1	.1	.2	.3	.4	.3	.3	.2	2.1	1.9	1.1	1.3
South Dakota.	.2	.2	.3	.3	.4	.4	.4	.2	2.2	1.8	1.1	1.2
Nebraska.	.5	.5	.7	.8	.9	.8	.7	.5	3.4	2.5	1.3	1.7
Kansas.	.9	.8	1.1	1.2	1.3	1.1	1.0	.8	3.3	2.8	1.4	1.8
South Atlantic.	14.4	13.8	16.3	15.5	13.3	12.3	23.4	23.7	13.8	16.3	21.0	21.3
Delaware.	.2	.2	.2	.3	.2	.2	.3	.3	.2	.1	.2	.2
Maryland.	1.5	1.5	1.8	1.9	1.6	1.6	1.8	2.2	.7	.5	1.0	1.0
District of Columbia.	.3	.3	.6	.6	.9	1.1	1.0	1.3	(2)	(2)	(2)	(2)
Virginia.	2.0	2.0	2.5	2.6	1.9	1.8	2.9	3.1	2.4	2.4	2.8	2.8
West Virginia.	1.1	1.2	1.1	1.2	.8	.9	.3	.3	.6	.9	.6	1.0
North Carolina.	3.4	3.1	2.6	2.5	1.9	1.8	4.1	4.0	5.0	5.3	5.1	4.4
South Carolina.	1.7	1.5	1.6	1.5	1.0	.9	2.9	2.9	1.8	2.5	3.2	3.7
Georgia.	2.5	2.2	2.8	2.7	2.0	1.9	5.1	5.3	2.4	3.7	3.7	4.3
Florida.	1.8	1.2	3.2	2.4	3.1	2.3	4.5	3.7	.9	.9	4.6	3.1
East South Central.	6.5	6.1	7.4	7.1	5.4	5.4	11.1	10.8	12.6	16.6	12.0	13.1
Kentucky.	1.6	1.7	1.5	1.5	1.3	1.4	1.5	1.6	3.8	4.0	2.4	3.0
Tennessee.	2.1	1.9	2.1	2.0	1.8	1.8	2.9	2.9	3.5	4.1	2.6	2.8
Alabama.	1.8	1.8	2.4	2.3	1.5	1.4	3.8	3.9	2.4	3.7	2.5	3.8
Mississippi.	1.0	.8	1.4	1.4	.9	.8	2.8	2.4	2.9	4.8	4.5	3.7
West South Central.	7.5	8.5	10.6	10.5	9.2	8.8	13.2	12.5	11.1	13.8	13.2	14.1
Arkansas.	.9	.7	1.2	1.3	.8	.8	1.4	1.1	2.0	3.3	1.9	2.3
Louisiana.	1.4	1.2	2.4	2.5	1.7	1.6	2.5	3.1	1.3	2.1	2.0	2.4
Oklahoma.	.9	.9	1.1	1.2	1.3	1.3	1.1	1.2	2.0	2.6	1.3	1.7
Texas.	4.2	5.7	5.8	5.6	5.3	5.1	7.2	7.0	5.8	5.9	8.0	7.4
Mountain.	2.6	2.1	3.7	3.2	4.2	3.5	3.1	2.2	4.8	4.2	6.1	5.1
Montana.	.2	.2	.4	.4	.4	.4	.3	.2	1.0	.8	.9	.8
Idaho.	.3	.3	.4	.4	.4	.4	.3	.2	1.1	.8	1.0	.8
Wyoming.	.1	.1	.2	.2	.2	.2	.2	.1	.4	.3	.4	.4
Colorado.	.7	.6	1.0	.8	1.1	1.0	.8	.6	1.1	1.0	1.1	1.2
New Mexico.	.3	.2	.5	.6	.5	.4	.5	.3	.4	.5	.6	.7
Arizona.	.5	.3	.8	.5	.7	.5	.6	.4	.3	.3	1.6	.8
Utah.	.4	.3	.5	.4	.5	.4	.3	.2	.4	.4	.4	.4
Nevada.	.1	.1	.1	.1	.4	.2	.1	.1	.1	.1	.2	.1
Pacific.	9.5	7.6	12.0	10.6	12.0	11.2	9.7	7.8	5.6	4.7	13.4	9.4
Washington.	1.2	.7	1.9	2.0	1.6	1.7	1.4	1.0	1.2	1.1	1.9	1.2
Oregon.	.9	.8	1.6	1.7	1.1	1.1	.8	.7	1.0	.9	1.2	1.1
California.	7.2	5.9	7.9	6.4	8.8	8.0	7.1	5.9	3.3	2.6	9.6	6.3
Alaska.	.1	.1	.1	.2	.1	.1	.1	(1)	.2	(1)	(1)	(1)
Hawaii.	.3	.2	.4	.4	.4	.4	.3	.2	.1	.1	.7	.7

¹ Less than 0.05 percent.

SOURCE: See table 1.

NOTE: Because of rounding, sums of individual items may not equal totals.

Of special significance to Michigan is the decline in the number of operatives and kindred workers, agricultural workers, and non-farm laborers. Between 1950 and 1960 there was a decline of 12,739 operative jobs, a decline of 53,280 farmer and farm manager jobs, a decline of 17,203 jobs for farm laborers, and a decline of 9,640 non-farm laborer jobs. Most of these declines represent losses in male employment. (See Table 12).

There is little likelihood that the trends indicated for Michigan and for the East North Central Region will shift or will be radically different from those for the country as a whole. As far as the shift of populations and employment opportunities among regions is concerned, recent informed opinion feels that "a gradual reduction in state differentials in industrial employment is developing."[19] However, the vast shifts which have taken place and continue to take place in both employment and population growth point to the need for "rapid expansion in education and other public services in many states, not only to meet the needs of the present workers and their families, but to equip the states to share appropriately in future employment growth."[20]

Predicting future occupation needs or the composition of industrial activity for a state is more difficult than for the country or region as a whole. The errors in predicting Michigan's future needs are, therefore, likely to be greater than in predicting the changes for a larger population. While the trends in the state should approximate those of the country, significantly different patterns have emerged over the past decade and should make for some differences over the next.

In projecting the occupational distributions of Michigan employment over the next decade, one might assume a continuation of past trends. Following the assumption of the National Planning Association that"there are strong pressures for existing capacity to remain where it is; even additional capacity, unless there are strong reasons to the contrary, will tend to locate where similar capacity is already located,"[21] it is most likely that recent trends in Michigan shall continue. Another economic phenomenon which reinforces Michigan trends is that the commodity-producing sectors are functions for the basic sectors[22] (For N.P.A. industrial projections see Table 13).

The projections of Michigan's occupational structure assume not only the continuation in industrial trends, but a continuation of past rates of economic growth. If we were to make a most conservative estimate of occupational change we might assume that the proportions of the population in the various occupations would remain exactly as they were in 1960. In the light of trends, this is an unrealistic assumption. However, there are a number of other assumptions based on past occupational distributions or on past trends which would provide us with a range of reasonable estimates of occupational distributions for the future.

One assumption would accept the rate of change for the major occupational groups during the decade of the 1950's and assume a similar rate of change for the decade of the 1960's, what we have called projection A. (See Table 14). Another assumption might be that the trends manifested over the 1940-50 period and the 1950-60 period would continue for 1960-70--projection B. Still another assumption might accept the mean rates of change over the 1940-1960 period--projection C. None of these, in and of themselves, seem valid for all, or even most, of the occupational groups, since one must expect that the rates of change for the recent fastest growing occupations would tend to show some decline, as would the rates of change for the recent most rapidly declining occupations. For example, in the former case, the rates of increase of professional and technical workers, and in the latter, the rates of decline in agricultural employment.

An attempt to reconcile past trends with future probability has led to our making two "judgment models;" a conservative one (judgment model I) and a more liberal one (judgment model II). (See Table 15). In both cases we have constructed the model from figures derived from projections A, B, and C, accepting the figures which appeared to be most consistent with past distributions of the major occupational groups. Model II is constructed from those figures which seem most consistent with the direction of recent trends. If we had set a fixed figure of employment for 1970, we would have had to give each occupational group a proper weight to derive the projections and the judgment models; then in all cases we would have derived the same total employment figure. Instead we just took the projections for each occupational group and totaled these. As a result the projections of the size of the labor force for each of the cases is different. In the projection, the smallest

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[19]Ibid., p. 25, Cf. S. P. Manor, "Geographic Changes in U. S. Employment From 1950 to 1960," Monthly Labor Review, January 1963, pp. 1-10; V. R. Fuchs, Changes in the Location of Manufacture in the United States Since 1929, New Haven: Yale University Press, 1962, pp. 19-29.

[20]U. S. Department of Labor, "Manpower Report of the President," loc. cit.

[21]Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U. S. Department of Labor, "Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportion," Washington, D. C.; U. S. Government Printing Office, 1962, p. 295.

[22]Loc. Cit.

Table 12

OCCUPATIONAL DISTRIBUTION OF THE LABOR FORCE
IN MICHIGAN, 1940-1960
(thousands)

Major Occupational Group	1940			1950			1960		
	Total[a]	Male	Female	Total[a]	Male	Female	Total[a]	Male	Female
Total	1821.4	1423.9	397.5	2391.9	1784.8	607.1	2726.9	1898.0	828.8
Professional, technical, and kindred workers.....	141.8	86.1	55.7	202.0	126.0	76.0	312.6	200.9	111.7
Farmers and farm managers.....	144.2	141.0	3.2	113.3	110.3	3.0	60.1	57.1	2.9
Proprietors, managers and officials, exc. farm.....	136.2	123.1	13.1	189.3	165.9	23.4	200.0	173.9	26.1
Clerical, sales and kindred workers.....	305.1	173.7	131.4	462.1	221.1	241.0	582.0	251.4	330.6
Craftsmen, foremen, and kindred workers.....	281.6	276.1	5.6	392.3	382.1	10.2	420.1	410.1	10.0
Operatives and kindred workers.	412.4	349.7	62.7	619.2	510.1	109.1	606.4	494.8	111.6
Domestic service workers.....	59.9	1.9	58.0	40.1	1.9	38.2	58.7	2.0	56.6
Service workers, exc. domestic.	129.4	76.4	53.0	181.9	98.7	83.2	236.4	106.6	129.9
Farm laborers (wage workers) and farm foremen.....	66.7	64.8	1.9	42.5	35.3	7.1	25.3	20.8	4.5
Laborers, exc. farm.....	125.9	119.8	6.1	118.7	113.3	5.5	109.3	104.8	4.5

[a] will not equal combined male and female because each was rounded.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington, D.C., Table 59.

Table 13

Distribution of Michigan Civilian Employment by Industry for the years 1947, 1957, and Projections for 1976

Industry	Employment			% of state civilian employment		
	1947	1957	1976	1947	1957	1976
Commodity Employment						
Agriculture	220.0	193.0	157.2	9.0	6.8	4.4
Mining	17.1	14.2	12.5	0.6	0.5	0.4
Manufacturing	1040.8	1051.2	1045.6	42.4	37.0	29.4
Non-Commodity Employment						
Transportation, communication and utilities	141.0	161.0	182.2	5.7	5.6	5.1
Trade	447.9	524.0	784.1	18.2	18.4	22.1
Service	264.8	443.7	739.0	10.8	15.6	20.8
Finance and real estate	54.7	81.2	97.3	2.2	2.9	2.7
Construction	99.2	138.2	204.4	4.1	4.9	5.8
Government	171.0	237.0	329.1	7.0	8.3	9.3
Total civilian employment	2456.5	2843.5	3551.4	100.0	100.0	100.0
Total population	6,075	7,690	10,289			

Source: Projection to the Years 1976 and 2000: Economic Growth, Population, Labor Force and Leisure, and Transportation, Outdoor Recreation Resources Review Commission, Study Report 23, National Planning Association, Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C., 1962, Table F-9, p. 328.

Table 14
Percent Change in Employment in Michigan by Major Occupational Group, 1940 to 1970

Major occupational group	1940 - 1950			1950 - 1960			1960 - 1970 Projections								
							A[1]			B[2]			C[3]		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	31.3	25.3	52.7	14.0	6.3	36.5	14.0	6.3	36.5	6.3	1.6	20.3	22.5	15.8	44.6
Professional, technical workers and kindred	42.4	46.2	36.6	54.7	59.5	46.9	54.7	59.5	46.9	70.7	76.6	60.1	48.6	52.9	41.8
Farmers and Farm managers	-21.4	-21.7	-5.2	-47.0	-48.2	-3.0	-47.0	-48.2	-3.0	-103.2	-107.1	-1.7	-34.2	-35.0	-4.1
Proprietors, managers and officials, exc. farm	39.0	34.8	78.1	5.6	47.9	11.7	5.6	47.9	11.7	.8	65.9	2.3	47.7	41.4	44.9
Clerical, sales and kindred workers	51.4	27.2	83.4	25.9	13.7	37.2	25.9	13.7	37.2	13.1	6.9	16.6	38.7	20.5	60.3
Craftsmen, foremen and kindred workers	39.3	33.4	83.4	7.1	7.3	-2.1	7.1	7.3	-2.1	(a)	1.4	(a)	(a)	22.9	(a)
Operatives and kindred workers	50.1	45.9	73.9	-2.1	-3.0	2.3	-2.1	-3.0	2.3	(a)	(a)	.1	(a)	(a)	38.1
Domestic service workers	-33.1	.1	-34.2	46.2	7.6	48.2	46.2	7.6	48.2	(a)	(b)	(a)	(a)	3.8	(a)
Service workers, ex. domestic	40.5	29.1	57.0	30.0	8.0	56.0	30.0	8.0	56.0	37.8	2.2	55.1	35.3	18.6	56.5
Farm laborers (wage workers) and farm foremen	-36.3	-45.4	269.4	-40.5	-41.3	-36.7	-40.5	-41.3	-36.7	-45.2	-37.6	(a)	-38.4	-43.4	(a)
Laborers, exc. farm	-5.7	-5.4	-10.6	-8.0	-7.5	-17.8	-8.0	-7.5	-17.8	-11.2	-10.4	-29.9	-6.8	-6.5	-14.2

[1]assumes the same rate of change as 1950-1960.
[2]based on trends over 1940-1960.
[3]based on the mean rates of change 1940-1960.
[a]trend changed direction between 1940-1950 and 1950-1960.
[b]negligible change for 1940-1950.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, table 59.

Table 15

Occupational Distribution of the Labor Force
in Michigan, 1970*

Major occupational group	Projection A[a] (thousands)			Projection B[b] (thousands)			Projection C[c] (thousands)			Judgment models I[d] (thousands)			Judgment models II[e] (thousands)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	3222.3	2,115.1	1107.2	3178.4	2131.1	1047.3	3418.1	2190.9	1227.2	3125.4	2088.8	1036.6	3241.9	2122.3	1119.6
Professional, technical and kindred	484.5	320.4	164.1	533.6	354.7	178.9	465.5	307.1	158.4	484.5	320.4	164.1	533.6	354.7	178.9
Farmers and Farm managers	32.5	29.6	2.9	32.5	(29.6)[f]	2.9	39.9	37.1	2.8	40.0	37.1	2.9	32.5	29.6	2.9
Proprietors, managers and officials, exc. farm	286.4	257.2	29.2	315.2	288.5	26.7	283.8	245.9	37.9	272.6	245.9	26.7	286.4	257.2	29.2
Clerical, sales and kindred workers	739.5	285.9	453.6	654.3	268.8	385.5	832.9	302.9	530.0	654.3	268.8	385.5	739.5	285.9	453.6
Craftsmen, foremen and kindred workers	449.8	440.0	9.8	425.7	415.9	(9.8)[f]	513.8	504.0	(9.8)[f]	449.8	440.0	9.8	425.7	415.9	9.8
Operatives and kindred workers	594.1	480.0	114.1	591.7	480.0	111.7	634.1	480.0	154.1	594.1	480.0	114.1	591.7	480.0	111.7
Domestic service workers	86.1	2.2	83.9	86.1	2.2	(83.9)[f]	86.0	2.1	(83.9)[f]	86.1	2.2	83.9	86.1	2.2	83.9
Service workers, ex. domestic	317.7	115.1	202.6	310.3	108.9	201.4	329.6	126.4	203.2	311.5	108.9	202.6	318.3	115.1	203.2
Farm laborers (wage workers) and farm foremen	15.1	12.2	2.9	15.9	13.0	(2.9)[f]	14.7	11.8	(2.9)[f]	15.9	13.0	2.9	15.1	12.2	2.9
Laborers, exc. farm	100.6	96.9	3.7	97.1	93.9	3.2	101.8	98.9	3.8	100.6	96.9	3.7	97.0	93.9	3.1
Occupation not reported	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4	116.0	75.6	40.4

*Assuming no radical changes in economic growth or development.

[a]assumes the same rate of change as 1950-1960.
[b]based on trends over 1940-1960.
[c]based on the mean rates of change 1940-1960.
[d]most consistent with past events (adopting the most reasonable conservative figures).
[e]most consistent with the direction of the trends, 1940-1960.
[f]figures borrowed from Projection A.

labor force would be 3.2 million, projection B; the largest 3.4 million, projection C. The judgment models, which we feel are more reasonable than any of the projections, show a difference of about 115,000 workers between the two estimates.*

Using any of the projections or judgment models, the patterns for future occupational distribution in Michigan are clear. The large increases among the professional and technical, the service, clerical and sales occupations are consistent with the growing demand for white-collar workers and the increasing participation of women in Michigan's labor force. These patterns are also consistent with the proportional declines of blue-collar workers in commodity-producing industries. The trends are also consistent with the emergent crisis in the employment of youth, especially those who have not received adequate education or training.

Unemployment Trends

If the statistics on employment trends as they affect particular occupational and industrial groups have not made the imminent employment probabilities for these groups clear, the complementary figures on unemployment certainly reinforce the impressions created in the discussion of employment. The increased demands for white-collar workers, placing a premium on education and training, are evident in the contemporary patterns of unemployment. Difficulties encountered by youthful workers entering the labor market in ever-increasing numbers also dominate unemployment patterns. Workers, especially young people, from underprivileged, socially marginal groups such as the U. S. Negroes, are unable to get full-time employment, reflecting the fact that employments trends have sociological significance.

The unemployment rates for all age groups have been increasing steadily over the past number of years. (See Table 16). Unemployment among youthful workers has consistently been higher than for the rest of the work force because of the problems which face new workers entering the labor force: early patterns of job-seeking reflecting inexperience; lack of identification with an industry or company; shopping around for jobs and job changing, reflecting a lack of knowledge of the labor market; and increasing vulnerability to layoff due to lack of seniority.[23] The anomaly concerning young workers entering the labor market today is that, with their rapidly increasing numbers, the unemployment rates for these age groups are also increasing very rapidly.

Perhaps more significant to the American economy and the problems of maintaining full employment than the rising rates of unemployment are the rising rates of long-term** unemployment. The long-term unemployed as a percentage of the total civilian labor force rose by approximately 16 per cent between 1957 and 1961. The largest rise has been for males in the 18-24 age group, more than 27 per cent, although there was a slight decline for male workers as a whole. The slight rise in long-term unemployment for all females reflects the 14 per cent rise in the 18-24 year old group. All other female groups showed declines over this period.[24]

The industrial redistribution of the labor force which has been taking place over past decades is also reflected in recent patterns of unemployment. In contrasting unemployment between 1958 and 1961, one finds that the proportion of workers in manufacturing who had some unemployment during each of these years respectively, fell from 24 to 22 per cent while unemployed in the service industries went up from 11 per cent to 14 per cent.[25]

A study of the distribution of unemployment for wage and salary people in industries which directly meet the needs of consumers and other industries with those producing commodities, as for example, construction, shows the disparate burden of unemployment placed on blue-collar workers. (See Table 17). As one might expect, the lowest rates of unemployment would be found among farmers

*It should be recognized that these projections are not based on a full-employment economy and hence show lower figures than indicated in the earlier section.

**Arbitrarily defined as workers looking for jobs fifteen weeks or longer.

23 U. S. Department of Labor, "Manpower Report of the President..." op. cit., p. 40; U. S. Department of Labor, Manpower Research Bulletin No. 2, op. cit.; J. L. Meredith, "Long-Term Unemployment in the United States," Monthly Labor Review, June 1961, pp. 605-606.

24 Meredith, loc. cit.

25 C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December, 1962 p. 1353.

Table 16

Unemployed persons, by age and sex

Annual averages, 1947-61

Age and sex	1961	1960[1]	1959	1958	1957	1956[2]	1955	1954	1953[3]	1952	1951	1950	1949	1948	1947
Number unemployed (thousands):															
Total	4,806	3,931	3,813	4,681	2,936	2,551	2,654	3,230	1,602	1,673	1,879	3,142	3,395	2,064	2,142
Male	3,060	2,541	2,473	3,155	1,893	1,608	1,752	2,161	1,069	1,062	1,123	2,155	2,415	1,430	1,595
14 to 19 years	542	480	451	473	351	296	292	318	195	222	206	339	367	262	279
14 and 15 years	63	55	53	57	52	44	33	26	24	30	27	38	28	30	27
16 and 17 years	221	200	191	185	140	125	129	138	89	110	96	133	140	103	107
18 and 19 years	258	225	207	231	159	127	130	154	82	82	83	168	199	129	145
20 to 24 years	457	369	343	478	283	219	224	299	132	134	138	358	459	294	368
25 to 34 years	585	492	483	685	349	315	329	469	202	195	209	435	491	260	326
35 to 44 years	507	415	407	552	304	250	301	390	178	166	168	326	379	203	226
45 to 54 years	473	392	390	492	302	247	262	337	166	154	171	313	317	180	188
55 to 64 years	374	294	287	349	220	199	250	243	145	127	149	272	283	160	148
65 years and over	122	96	112	124	83	84	94	104	52	64	82	112	119	72	60
Female	1,747	1,390	1,340	1,526	1,043	943	903	1,069	533	611	756	987	981	633	547
14 to 19 years	379	310	276	284	222	214	179	197	117	140	150	204	228	153	146
14 and 15 years	30	24	20	22	25	25	17	18	10	15	16	23	17	17	17
16 and 17 years	142	124	110	114	90	89	71	72	49	59	61	81	88	60	57
18 and 19 years	207	162	146	148	107	100	91	107	58	66	73	100	123	76	72
20 to 24 years	265	214	200	223	147	137	131	159	89	97	102	168	178	115	109
25 to 34 years	304	260	242	308	224	181	199	243	119	135	176	216	213	144	112
35 to 44 years	342	256	266	319	195	171	172	215	92	112	141	168	168	94	82
45 to 54 years	278	222	214	239	146	139	129	155	67	74	109	141	109	74	58
55 to 64 years	141	101	119	122	80	83	79	84	40	42	67	73	65	43	33
65 years and over	36	25	23	31	28	17	14	17	9	11	14	18	20	10	8
Unemployment rate:															
Total	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4	3.6
Male	6.5	5.4	5.3	6.8	4.1	3.5	3.9	4.9	2.4	2.4	2.6	4.9	5.5	3.3	3.7
14 to 19 years	15.4	14.0	13.8	15.2	11.3	9.6	9.9	11.2	6.8	7.6	7.0	11.0	11.9	8.3	9.1
14 and 15 years	8.7	8.6	7.8	8.4	7.6	6.6	5.8	4.5	4.3	5.1	4.4	6.1	4.9	5.2	4.6
16 and 17 years	18.3	15.5	15.8	16.3	12.4	10.9	12.1	13.5	8.3	10.0	8.9	12.7	13.3	9.3	9.7
18 and 19 years	16.3	15.0	14.9	17.8	12.3	9.8	10.0	12.1	6.6	6.8	6.6	11.5	14.0	8.7	10.5
20 to 24 years	10.7	8.9	8.7	12.7	7.8	6.3	7.0	9.8	4.3	4.0	3.5	7.7	9.9	6.3	7.9
25 to 34 years	5.7	4.8	4.7	6.5	3.3	2.9	3.0	4.4	1.9	1.8	2.0	4.2	4.7	2.5	3.2
35 to 44 years	4.6	3.8	3.7	5.1	2.8	2.3	2.8	3.7	1.7	1.7	1.7	3.3	3.8	2.1	2.4
45 to 54 years	4.9	4.1	4.1	5.3	3.3	2.7	3.0	3.9	1.9	1.8	2.1	3.9	3.9	2.3	2.4
55 to 64 years	5.7	4.6	4.5	5.5	3.5	3.2	4.1	4.9	2.4	2.1	2.5	4.7	4.9	2.8	2.6
65 years and over	5.5	4.2	4.8	5.2	3.4	3.3	3.7	4.2	2.0	2.7	3.3	4.6	4.9	3.0	2.5
Female	7.2	5.9	5.9	6.8	4.7	4.3	4.3	5.4	2.7	3.1	3.9	5.3	5.4	3.6	3.2
14 to 19 years	14.8	12.9	12.3	13.1	10.1	9.9	9.0	10.0	6.0	7.0	7.4	10.4	11.2	7.3	7.1
14 and 15 years	7.2	6.9	5.7	6.6	7.5	8.0	6.6	7.1	4.2	6.1	6.3	8.6	7.0	6.9	7.3
16 and 17 years	18.3	15.4	14.4	16.6	12.6	12.1	11.1	11.6	7.5	8.4	9.2	13.3	13.6	8.9	8.9
18 and 19 years	15.1	13.0	12.9	12.9	9.4	9.0	8.4	10.1	5.5	6.3	6.7	9.1	10.6	6.5	6.0
20 to 24 years	9.8	8.3	8.1	8.9	6.0	5.6	5.4	6.6	3.7	3.9	3.8	6.3	6.7	4.2	4.0
25 to 34 years	7.3	6.3	5.9	7.3	5.3	4.3	4.7	5.8	2.9	3.1	4.1	5.3	5.3	3.7	3.0
35 to 44 years	6.3	4.8	5.1	6.2	3.8	3.4	3.6	4.6	2.0	2.5	3.3	4.0	4.2	2.5	2.2
45 to 54 years	5.1	4.2	4.2	4.9	3.2	3.2	3.1	4.0	1.8	2.0	3.1	4.2	3.5	2.5	2.1
55 to 64 years	4.5	3.4	4.1	4.5	3.0	3.2	3.3	3.9	2.0	2.1	3.5	3.9	3.8	2.7	2.2
65 years and over	3.9	2.8	2.8	3.8	3.4	2.1	1.8	2.9	1.3	1.9	2.5	3.4	3.4	1.9	1.8

[1] See footnote 4, table 1.
[2] See footnote 2, table 7.
[3] See footnote 3, table 1.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 12, p. 13.

Table 17

Unemployment rates and percent distribution of the unemployed, by major industry group

Annual averages, 1948-61

Major industry group	1961	1960[1]	1959	1958	1957	1956[2]	1955	1954	1953[3]	1952	1951	1950	1949	1948
Unemployment rate:														
Total[4]	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4
Experienced wage and salary workers	6.8	5.7	5.6	7.2	4.5	3.9	4.3	5.5	2.7	2.9	3.2	5.6	6.2	3.7
Agriculture	9.3	8.0	8.7	9.9	6.7	6.5	6.4	8.0	4.7	3.9	3.9	8.2	6.5	4.7
Nonagricultural industries	6.7	5.6	5.5	7.1	4.5	3.8	4.2	5.4	2.6	2.8	3.2	5.4	6.2	3.7
Mining, forestry, fisheries	11.6	9.5	9.7	10.6	6.3	6.4	8.2	12.3	4.9	3.4	3.8	6.6	8.5	2.9
Construction	14.1	12.2	12.0	13.7	9.8	8.3	9.2	10.5	6.1	5.5	6.0	10.7	11.9	7.6
Manufacturing	7.7	6.2	6.0	9.2	5.0	4.2	4.2	6.1	2.5	2.8	3.3	5.6	7.2	3.5
Durable goods	8.4	6.3	6.1	10.5	4.9	4.0	4.0	6.5	2.0	2.4	2.6	5.2	7.4	3.4
Nondurable goods	6.7	6.0	5.9	7.6	5.3	4.4	4.4	5.7	3.1	3.3	4.0	6.0	6.9	3.6
Transportation and public utilities	5.1	4.3	4.2	5.6	3.1	2.4	3.5	4.8	1.8	1.9	1.9	4.1	5.2	3.0
Wholesale and retail trade	7.2	5.9	5.8	6.7	4.5	4.1	4.3	5.2	3.0	3.1	3.7	5.8	5.8	4.3
Finance, insurance, and real estate	3.3	2.4	2.6	2.9	1.8	1.4	2.1	2.0	1.6	1.5	1.3	2.0	1.8	1.6
Service industries	4.9	4.1	4.3	4.6	3.4	3.2	3.8	4.0	2.4	2.6	3.1	5.0	5.1	3.5
Public administration	2.7	2.6	2.3	3.0	2.0	1.6	1.8	2.0	1.2	1.1	1.6	2.8	2.9	2.0
Percent distribution:														
Total[4]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Experienced wage and salary workers	84.9	85.3	85.6	87.8	87.2	85.8	88.0	89.8	88.6	87.7	87.8	89.1	89.6	87.7
Agriculture	3.7	4.1	4.2	3.9	4.2	4.6	4.4	3.9	4.5	3.7	3.6	4.9	3.7	4.2
Nonagricultural industries	81.2	81.2	81.4	83.9	83.0	81.2	83.6	85.9	84.1	84.0	84.3	84.2	85.9	83.5
Mining, forestry, fisheries	1.6	1.7	1.8	1.7	1.7	2.1	2.5	3.1	2.7	2.0	2.0	2.0	2.2	1.4
Construction	11.7	12.3	12.6	11.6	12.5	11.8	12.5	11.4	12.9	12.1	10.8	11.0	10.9	10.7
Manufacturing	28.8	28.2	27.8	34.4	30.8	29.0	27.5	33.3	27.0	28.3	29.3	28.8	33.3	28.0
Durable goods	17.5	16.0	16.1	22.2	17.2	16.1	15.0	20.0	13.1	13.3	12.5	13.9	17.8	14.3
Nondurable goods	11.3	12.2	11.6	12.2	13.6	12.9	12.5	13.3	13.9	15.1	16.8	14.9	15.4	13.6
Transportation and public utilities	4.9	5.2	5.0	5.4	5.0	4.5	6.0	6.7	5.3	5.3	4.7	5.9	7.2	6.8
Wholesale and retail trade	16.4	16.3	16.3	15.2	15.9	16.6	16.3	16.0	17.9	18.0	18.6	17.9	16.2	18.8
Finance, insurance, and real estate	1.9	1.7	1.7	1.5	1.5	1.2	1.7	1.2	1.9	1.7	1.3	1.1	.9	1.3
Service industries	13.9	13.6	14.3	12.1	13.6	14.2	15.0	12.4	14.1	14.5	15.1	14.9	12.9	13.9
Public administration	1.9	2.2	1.9	2.0	2.1	1.9	2.0	1.8	2.2	2.1	2.4	2.6	2.4	2.7

[1] See footnote 4, table 1.
[2] See footnote 2, table 7.
[3] See footnote 3, table 1.
[4] Includes other experienced unemployed (self-employed and unpaid family workers); excludes those with no previous work experience.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 16, p. 16.

and farm managers, although agricultural workers as a group had a relatively high rate of unemployment. The lowest unemployment category of workers is the higher white-collar workers,[26] and clerical and sales workers still seem to share their good fortune. The highest rates of unemployment are found among operatives and laborers; craftsmen and foremen are also hard-hit by unemployment.

Although unemployment touches all industries, even public administration, the service industries generally provide the most stability in employment. The highest rates of unemployment are found in construction, forestry, fisheries and mining and in the manufacture of durable goods-industries with the highest proportions of blue-collar employees. (See Table 18).

As the changes in the distribution of white- and blue-collar workers continue, it will be found that the lower white-collar workers are not immune to instabilities in employment. In fact, between 1947 and 1961, unemployment rates for blue-collar workers have shown a slight decline. (See Table 19). The unemployment rates for the higher white-collar groups remain fairly constant, but the unemployment rates for the lower white-collar groups have shown a slight rise. The unemployment rates for service workers remained fairly stable during this period.

Some of the tendencies indicated above are even more disturbing when one explores unemployment for 1961 among those who had no work experience during that year. (See Table 20). More than 46 per cent of this group consisted of workers 24 years and under. Of this group a little less than half looked for regular full-time jobs, of which only a fourth looked for less than 5 weeks. Of the total looking for full-time employment, 28 per cent were non-white workers and of this group 87 per cent were unemployed and looking for work for five weeks or more.

What are the variables which underlie these patterns of unemployment? The single most important criterion of stability in employment appears to be the level of education of the worker. As one moves up the occupational ladder toward the professions with their high levels of education, the rates of unemployment decline radically.

The significance of education to the employment patterns in the United States cannot be overstated. The median years of education attained by the population generally and by the labor force specifically have been rising steadily. (See Table 21). Over the past ten years the median education of the employed rose from 10.9 to 12.1 years of schooling. The level of education among the unemployed has also shown a rise. The higher educational levels of the female employed and unemployed workers reflect the greater proportion of women in the white-collar sector of the labor force.

The relatively low educational levels of the rural labor force is reflected in the fact that the median educational level of the employed agricultural workers is lower than the median education level of the total unemployed. With the continued large decline in agricultural employment and the movement of workers from rural to urban areas, the difficulties inherent in these migration patterns are almost insurmountable. This is true for both white and non-white workers leaving marginal agricultural lands seeking urban employment. The handicaps of poor education and the lack of employment opportunities in occupations which now call for relatively low educational levels make the probabilities of these groups getting employment very small.

The high educational demands traditionally made on professional and technical occupations are evident. Also in evidence is the greater than high school education demanded in the sales and clerical fields. The 10-11th grade median high school education found for craftsmen and operatives is misleading. Since educational levels have risen historically, the older, more established workers in each of these fields are most likely to have lower educational levels, bringing the median figure down. (See Table 22). This means that new young workers entering the labor force will have to compete with other young workers with at least a high school education. Laboring jobs and some of the semi-skilled operative jobs do not make high educational demands. But as has already been demonstrated, these jobs are becoming less significant to our economy and offer few opportunities for youthful job aspirants flooding the labor market.

The problems for the Negro worker are even greater than for the poorly prepared whites. The deprivation of the Negro worker is reflected not only in his inability to get work, as evidenced in his high rates of unemployment, but in the types of work he gets when employed. Today, 22 per cent of all unemployed are Negro workers, although Negroes constitute only 11 per cent of the labor force. These figures also tend to be underestimates because of the underemployment of Negroes in Southern

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[26] C. W. Mills uses this term to describe the professional, technical, owner, and managerial groups among the white-collar workers. See White Collar Workers, New York: Oxford University Press, 1956.

Table 18

Extent of Unemployment in 1960 and 1961 Among Persons Who Worked During the Year, By Major Occupation and Industry Group of Longest Job

Major occupation or industry group	Unemployed as percent of total who worked		Percent of unemployed who worked during the year having unemployment of-					
			15 weeks or more		2 spells		3 spells or more	
	1961	1960	1961	1960	1961	1960	1961	1960
All Groups	16.7	15.6	37.7	35.4	17.1	16.2	19.8	20.4
OCCUPATION GROUP								
Professional, technical, and kindred workers	7.1	5.4	26.1	25.5	9.7	13.6	13.9	9.1
Farmers and farm managers	2.5	2.0	(1)	(1)	(1)	(1)	(1)	(1)
Managers, officials, and proprietors, except farm	5.8	4.5	38.3	34.1	14.1	12.0	13.0	11.5
Clerical and kindred workers	13.6	11.1	30.1	27.2	13.0	12.7	10.2	9.3
Sales workers	12.1	12.3	32.5	26.5	14.2	14.7	13.1	12.4
Craftsmen, foremen, and kindred workers	23.1	21.3	34.8	37.3	20.0	16.8	24.4	28.2
Operatives and kindred workers	27.8	27.7	37.4	33.6	17.8	18.1	19.4	17.8
Private household workers	12.0	11.4	41.1	37.9	19.6	15.1	21.7	20.6
Service workers, except private household	17.5	16.0	40.9	38.8	19.3	15.2	15.2	19.4
Farm laborers and foremen	14.0	13.2	42.9	41.4	16.5	13.7	35.7	42.2
Laborers, except farm and mine	36.6	43.9	48.6	46.1	18.6	18.1	29.6	27.7
INDUSTRY GROUP								
Wage and salary workers	18.9	18.0	37.3	35.2	17.3	16.4	19.2	19.9
Agriculture	24.7	24.3	44.3	43.8	18.7	14.6	33.1	41.3
Nonagricultural industries	18.7	17.7	36.9	34.7	17.2	16.5	18.4	18.7
Forestry, fisheries, and mining	30.0	21.9	40.6	45.5	15.4	17.9	25.6	20.5
Construction	43.9	43.4	41.2	44.4	22.3	20.1	31.3	34.3
Manufacturing	22.0	21.7	34.6	30.7	16.6	16.3	16.0	15.2
Durable goods	23.6	23.3	34.7	29.7	15.9	17.0	14.3	13.3
Nondurable goods	20.1	19.6	34.6	32.1	17.6	15.3	18.4	18.2
Transportation and public utilities	14.0	13.2	38.2	36.0	12.8	12.1	24.0	20.4
Wholesale and retail trade	17.9	17.9	36.7	32.7	17.8	15.4	14.9	15.6
Service industries	13.7	11.3	37.3	35.4	16.1	16.6	15.3	16.2
Private households	13.0	12.8	43.4	39.1	16.7	14.4	26.2	26.6
Other services	13.9	11.0	35.9	34.4	16.0	17.2	12.8	13.4
Public administration	7.5	7.4	33.8	36.6	11.7	12.8	13.2	10.6

(1) Percent now shown where base in less than 100,000.

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1354.

Table 19

Unemployment rates and percent distribution of the unemployed, by major occupation group

Annual averages[1], 1947-61

Major occupation group	1961	1960[2]	1959	1958	1957	1956[3]	1955	1954	1953[4]	1952	1951	1950	1949	1948	1947
Unemployment rate:															
Total	6.7	5.6	5.5	6.8	4.3	3.8	4.0	5.0	2.5	2.7	3.0	5.0	5.5	3.4	3.6
Professional, technical, and kindred workers	2.0	1.7	1.7	2.0	1.2	1.0	1.0	1.6	.9	1.0	1.5	2.2	1.9	1.7	1.9
Farmers and farm managers	.4	.3	.3	.6	.3	.4	.4	.4	.2	.2	.3	.3	.2	.2	.2
Managers, officials, and proprietors, except farm	1.8	1.4	1.3	1.7	1.0	.8	.9	1.2	.9	.7	1.0	1.6	1.5	1.0	1.2
Clerical and kindred workers	4.6	3.8	3.7	4.4	2.8	2.4	2.6	3.1	1.7	1.8	2.1	3.4	3.8	2.3	2.9
Sales workers	4.7	3.7	3.7	4.0	2.6	2.7	2.4	3.7	2.1	2.5	2.8	4.0	3.5	3.4	2.6
Craftsmen, foremen, and kindred workers	6.3	5.3	5.3	6.8	3.8	3.2	4.0	4.9	2.6	2.4	2.6	5.6	5.9	2.9	3.8
Operatives and kindred workers	9.6	8.0	7.6	10.9	6.3	5.4	5.7	7.6	3.2	3.9	4.3	6.8	8.0	4.1	5.1
Private household workers	5.9	4.9	4.8	5.2	3.7	4.2	4.1	5.0	2.5	3.2	3.8	5.6	5.2	3.2	3.4
Service workers, except private household	7.4	6.0	6.4	7.4	5.1	4.8	5.8	5.2	3.6	3.7	4.3	6.8	6.2	4.8	4.7
Farm laborers and foremen	5.7	5.2	5.1	6.2	3.7	3.7	3.7	4.2	2.5	2.3	2.1	5.0	3.9	2.3	2.7
Laborers, except farm and mine	14.5	12.5	12.4	14.9	9.4	8.2	10.2	10.7	6.1	5.7	5.6	11.7	12.9	7.5	7.5
Percent distribution:															
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	3.4	3.2	2.9	2.7	2.4	2.2	2.8	3.0	3.1	3.8	3.1	2.3	3.4	3.2
Farmers and farm managers	.2	.2	.2	.4	.3	.5	.5	.5	.6	.5	.6	.5	.3	.4	.4
Managers, officials, and proprietors, except farm	2.8	2.5	2.4	2.6	2.3	2.0	2.2	2.5	3.8	2.4	3.2	3.2	2.9	3.3	3.1
Clerical and kindred workers	9.9	9.8	9.3	9.0	9.2	8.6	8.0	8.2	8.5	8.5	8.7	8.2	8.8	8.6	9.5
Sales workers	4.6	4.2	4.4	3.7	3.8	4.5	3.6	4.8	5.2	5.4	5.7	4.9	4.0	6.3	4.0
Craftsmen, foremen, and kindred workers	12.1	12.1	12.5	13.2	12.0	11.3	12.8	13.5	14.5	12.5	11.5	13.8	14.4	12.0	13.5
Operatives and kindred workers	26.0	26.5	25.5	30.0	29.4	28.5	28.2	32.1	26.5	28.8	29.1	26.9	30.5	26.0	28.9
Private household workers	3.0	2.9	2.9	2.6	2.8	3.6	3.1	2.9	3.0	3.4	3.8	3.4	2.9	2.9	2.6
Service workers, except private household	10.5	9.9	10.5	9.5	10.2	10.9	11.7	8.7	12.0	10.4	10.9	10.3	8.8	10.7	9.1
Farm laborers and foremen	3.1	3.6	3.6	3.5	3.7	4.4	4.0	3.4	3.8	3.6	3.2	4.8	3.8	3.8	3.8
Laborers, except farm and mine	12.2	13.3	13.9	13.5	13.3	12.8	15.3	13.7	14.8	13.1	12.2	14.2	14.6	14.0	12.5
No previous work experience	12.2	11.6	11.6	9.3	10.3	10.4	8.4	7.0	4.4	8.3	7.3	6.8	6.6	8.8	9.4

[1] See footnote 2, table 6.
[2] See footnote 4, table 1.
[3] See footnote 2, table 7.
[4] See footnote 2, table 1.

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Labor Force, Employment, and Unemployment Statistics, 1947-61," Washington, D.C.: U.S. Government Printing Office, October 1962, Table 13, p. 14.

Table 20

Unemployed Persons With No Work Experience in 1961, By Extent of Unemployment, Type of Job Looked for, Age, Marital Status, and Color

Type of job looked for, age, marital status, and color	Total looking for work		Percent distribution by number of weeks unemployed				
	Number (thousands)	Percent	Total	1 to 4 weeks	5 to 14 weeks	15 to 26 weeks	27 weeks or more
Total, 14 years and over...	1,676	100.0	100.0	33.4	21.9	8.6	36.2
Age:							
14 to 17 years.....	368	22.0	100.0	47.4	35.3	7.2	10.2
18 to 24 years.....	407	24.3	100.0	33.2	23.8	12.5	30.5
25 to 64 years.....	814	48.6	100.0	28.9	15.1	7.2	48.9
65 years and over.....	87	5.2	(1)	----	----	----	----
Marital Status:							
Single	702	41.9	100.0	34.7	28.8	9.6	26.9
Married, spouse present.....	728	43.4	100.0	36.3	18.7	7.3	37.7
Other marital status	246	14.7	100.0	20.6	10.7	11.1	57.6
Color:							
White.....	1,279	76.3	100.0	38.2	21.4	8.3	32.2
Nonwhite.....	397	23.7	100.0	17.9	23.5	9.7	49.0
Looked for regular full-time job	1,022	100.0	100.0	22.4	18.1	10.7	48.8
Age:							
14 to 24 years.....	363	35.5	100.0	25.1	23.7	15.9	35.2
25 years and over	659	64.5	100.0	20.9	15.0	7.8	56.3
Marital status:							
Single	315	30.8	100.0	15.3	22.3	14.6	47.8
Married, spouse present.....	516	50.5	100.0	29.2	18.3	8.8	43.8
Other marital status.....	191	18.7	100.0	15.9	10.1	10.6	63.5
Color:							
White.....	734	71.8	100.0	25.8	18.8	10.0	45.3
Nonwhite.....	288	28.2	100.0	13.5	16.3	12.4	57.8
Looked for temporary or part-time job.....	654	100.0	100.0	50.7	27.8	5.3	16.2
Age:							
14 to 24 years.....	412	63.0	100.0	52.7	34.0	4.9	8.5
25 years and over.....	242	37.0	100.0	47.2	16.6	6.1	30.1
Marital status:							
Single.....	387	59.2	100.0	50.7	34.1	5.5	9.7
Married, spouse present.....	212	32.4	100.0	54.5	19.8	3.5	22.3
Other marital status.....	55	8.4	(1)	----	----	----	----
Color:							
White.....	545	83.3	100.0	55.2	24.9	5.8	14.1
Nonwhite.....	109	16.7	100.0	29.1	41.8	2.7	26.4

(1) Percent not shown where base is less than 100,000

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1358.

Table 21

Median Years of School Completed by the Civilian Noninstitutional Population 18 Years Old and Over, by Employment Status and Sex, 1952-62

Sex	Total, 18 years old and over	Labor Force					Not in Labor Force
		Total	Employed			Unemployed	
			Total	Agriculture	Nonagriculture		
Both Sexes							
October 1952	10.6	10.9	10.9	(1)	(1)	10.1	10.0
March 1957	11.0	11.6	11.7	(1)	(1)	9.4	10.2
March 1959	11.4	12.0	12.0	8.6	12.1	9.9	10.5
March 1962	11.9	12.1	12.1	8.7	12.2	10.6	10.7
Male							
October 1952	10.1	10.4	10.4	(1)	(1)	8.8	8.5
March 1957	10.7	11.1	11.2	(1)	(1)	8.9	8.5
March 1959	11.1	11.5	11.7	8.6	12.0	9.5	8.5
March 1962	11.6	12.0	12.1	8.7	12.1	10.0	8.7
Female							
October 1952.....	11.0	12.0	12.0	(1)	(1)	11.5	10.4
March 1957.....	11.4	12.1	12.1	(1)	(1)	10.4	10.7
March 1959	11.7	12.2	12.2	8.8	12.2	10.7	10.9
March 1962	12.0	12.2	12.3	9.4	12.3	11.5	11.2

(1) Not available

Source: Manpower Report of the President and A Report of Manpower Requirements, Resources, Utilization, and Training, United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

Table 22

Median Years of School Completed by the Civilian Labor Force 18 Years Old and Over, by Age and Sex, 1952-62

Sex	18 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over
Both Sexes						
October 1952	12.2	12.1	11.4	8.3		8.3
March 1957	12.3	12.2	12.0	9.5		8.5
March 1959	12.3	12.3	12.1	10.8	8.9	8.6
March 1962	12.4	12.4	12.2	11.6	9.4	8.8
Male						
October 1952	11.5	12.1	11.2	8.7		8.2
March 1957	12.1	12.2	11.8	9.0		8.4
March 1959	12.1	12.3	12.1	10.4	8.8	8.5
March 1962	12.3	12.4	12.2	11.1	9.0	8.7
Female						
October 1952	12.4	12.2	11.9	9.2		8.8
March 1957	12.4	12.3	12.1	10.8		8.8
March 1959	12.4	12.3	12.2	11.7	10.0	8.8
March 1962	12.5	12.4	12.3	12.1	10.7	9.0

Source: Manpower Report of the President and A Report of Manpower Requirements, Resources, Utilization, and Training, United States Department of Labor, U.S. Government Printing Office, Washington, D.C., 1963.

agricultural industry and the proportions who drop out of the labor force. Three-fourths of the Negro workers are concentrated in low skill occupations and in industries most susceptible to irregular employment.[27]

The tremendous disparities in the employment opportunities between white and non-white workers is reflected for males and females in total unemployment figures and in long-term unemployment. (See Table 23). The tremendous increase in long-term unemployment for non-white women between 1960 and 1961, for example, shows the vagaries of the economic scene and of the labor market generally and their effects on employment opportunities for different groups in the labor force.

What are the chances that young high school graduates or high school dropouts with or without vocational training will successfully get work? A study of the June, 1961, high school graduates in the United States showed that by October, 1961, 850,000 of the 1,750,000 who had been graduated were enrolled in college.[28] Of the 900,000 who did not go to college, most were in the labor force and 18 per cent were unemployed. Of these high school graduates, two-thirds of the girls had clerical jobs and two-thirds of the boys semi-skilled operative jobs or unskilled laborer jobs. These patterns were similar to those for the 1960 graduates.[29]

Between January, 1961, and October, 1961, about 350,000 in the age group 16-24 quit elementary or high school, similar to the dropout rate a year earlier. In contrast to the high school graduates, the dropouts had an unemployment rate of 27 per cent. In general, the dropouts were in an unfavorable position when compared to the graduates in the types of jobs they could obtain. They were more likely to be service workers, undoubtedly of the lowest skill levels, and farm workers. Only 1 in 9 had a clerical job. (See Table 24). In contrast to the 10 per cent of the graduates who had part-time work because of the inability to find full-time employment, 20 per cent of the dropouts had part-time work. As Secretary Wirtz has put it, "A boy or girl who drops out of school today without an elemental skill comes awfully close to committing economic suicide; for the number of unskilled jobs is getting smaller and smaller every year."[30]

If these levels of unemployment and the areas in which employment was available reflected the purely rational characteristics related to employment, such as training and education, rather than also reflecting discriminatory hiring, the opportunities for Negroes would still be highly limited. While every thirteenth person among the unemployed had less than five years of elementary school education, one out of every five adult non-white male unemployed persons had less than five years of formal education.

During the school months of 1962, approximately 700,000 youths between the ages of 16 and 21 were not in school and did not have work;[31] one out of four was non-white. Non-white youths under 19 had an unemployment rate of 24 per cent, double that of white youths. In 1962, 57 per cent of the non-white youths between 20-24 years of age were school dropouts; among white youths the percentage was 28 per cent.

The patterns of unemployment found for the nation as a whole are also found in Michigan. White-collar workers have lower rates of unemployment than blue-collar workers; non-whites suffer much more unemployment than do white workers, and youthful workers have a more difficult time in gaining employment than do older workers.[32] (See Table 25). Again, education seems to be the most crucial variable in employment.

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[27]Statement of W. Wirtz, Secretary of Labor before the Subcommittee on Unemployment of the House Education and Labor Committee on the President's Proposed Amendments of the Manpower Development and Training Act, July 8, 1963, p. 12; also, U. S. Department of Labor, "Manpower Report of the President..." op. cit.,p. 43.

[28]U. S. Department of Labor, Bureau of Labor Statistics, Advanced Summary Special Labor Force Report, "Employment of 1961 High Schools Graduates and Dropouts," October, 1961, pp. 1-2.

[29]U. S. Department of Labor, Bureau of Labor Statistics, Advance Summary Special Labor Force Report, "Employment of 1961 High School Graduates and Dropouts," October 1961, pp. 1-2.

[30]Wirtz, op. cit., p. 12.

[31]Ibid., p. 14.

[32]The patterns of unemployment are universal, although the rates related to various social characteristics vary with region, social and economic areas.

Table 23

Extent of Unemployment in 1960 and 1961, By Age, Marital Status, Color, and Sex

Characteristics	Unemployed as percent of total working or looking for work		Percent of unemployed who worked during the year having unemployment of-					
			15 weeks or more		2 spells		3 spells or more	
	1961	1960	1961	1960	1961	1960	1961	1960
Total, 14 years and over	18.4	17.2	37.7	35.4	17.1	16.2	19.8	20.4
AGE AND SEX								
Male, 14 years and over	19.5	18.4	38.4	37.0	17.6	16.8	22.2	22.8
14 to 17 years	20.8	19.3	25.5	29.7	17.6	16.6	14.3	22.5
18 and 19 years	35.5	33.0	36.1	32.5	20.6	15.1	18.2	22.4
20 to 24 years	33.6	34.8	34.3	36.2	20.2	16.1	19.1	19.8
25 to 34 years	21.1	20.1	36.4	33.2	16.4	16.5	22.1	18.4
35 to 44 years	17.6	15.3	38.1	33.5	16.4	18.0	23.4	24.0
45 to 64 years	15.2	14.4	43.7	43.0	17.9	17.1	24.5	27.0
65 years and over	10.6	10.8	55.4	61.4	13.7	15.7	35.0	33.1
Female, 14 years and over	16.7	15.3	36.1	31.9	20.1	14.9	15.0	15.2
14 to 17 years	13.6	13.7	28.4	18.9	17.3	8.5	6.2	9.1
18 and 19 years	35.5	29.9	23.0	21.1	18.2	13.2	11.2	8.3
20 to 24 years	24.1	19.5	31.3	30.8	15.0	18.2	12.2	11.4
25 to 34 years	18.7	16.2	33.3	33.5	16.0	15.9	13.8	15.4
35 to 44 years	15.5	14.5	42.0	31.9	14.9	14.3	17.1	17.4
45 to 64 years	12.5	12.5	44.0	36.1	17.2	14.6	19.4	18.7
65 years and over	7.0	8.3	(1)	(1)	(1)	(1)	(1)	(1)
MARITAL STATUS AND SEX								
Male:								
Single	27.0	26.1	38.0	38.2	18.4	16.8	19.4	22.0
Married, wife present	16.6	15.7	37.4	35.2	17.5	16.7	22.0	23.0
Other marital status	28.7	25.9	47.6	47.6	16.6	17.3	34.1	24.7
Female:								
Single	18.6	16.7	31.2	29.6	18.9	15.2	11.8	11.4
Married, husband present	15.5	14.1	36.7	30.6	15.0	14.6	15.3	15.0
Other marital status	18.3	17.5	39.7	37.3	15.6	14.9	18.1	19.8
COLOR AND SEX								
Both sexes:								
White	17.0	15.9	35.3	33.8	17.2	16.2	18.1	19.0
Nonwhite	29.3	27.8	49.2	42.3	16.6	16.2	28.4	27.1
Male:								
White	17.8	16.9	36.4	35.7	18.1	17.1	20.4	21.0
Nonwhite	34.1	31.8	48.2	43.3	15.3	15.0	30.7	31.4
Female:								
White	15.7	14.2	32.8	29.9	15.4	14.0	13.2	14.4
Nonwhite	23.5	22.9	51.3	40.4	19.2	18.3	23.7	18.5

(1) Percent not shown where base is less than 100,000.

Source: C. Rosenfeld, "Work Experience of the Population in 1961," Monthly Labor Review, December 1962, p. 1355.

Table 24

Employment Status and Major Occupation Group of June 1961 High School Graduates Not Enrolled in College and Nongraduates Who Dropped Out of School in 1961, by Sex, October 1961

Employment status and major occupation group	June 1961 high school graduates			Nongraduates who dropped out of school in 1961		
	Both sexes	Male	Female	Both sexes	Male	Female
Civilian noninstitutional population (thousands)	916	345	571	354	179	175
In labor force						
Number (thousands)	730	297	433	239	150	89
Percent of population	79.7	86.1	75.8	67.5	83.8	50.9
Employed						
Number (thousands)	599	242	357	175	108	67
Unemployed						
Percent of labor force	17.9	18.5	17.6	26.8	28.0	(1/)
Percent distribution of employed by occupation	100.0	100.0	100.0	100.0	100.0	(1/)
Professional, technical, and kindred workers	1.5	-	2.5	1.1	1.8	(1/)
Managers, officials, and proprietors, except farm	.2	.4	-	-	-	(1/)
Clerical and kindred workers	41.6	9.9	63.2	11.4	7.3	(1/)
Sales workers	5.7	4.5	6.5	4.5	3.6	(1/)
Craftsmen, foremen, and kindred workers	4.2	9.9	.3	2.8	4.5	(1/)
Operatives and kindred workers	18.2	31.0	9.6	17.0	22.7	(1/)
Private household workers	2.8	-	4.8	9.7	1.8	(1/)
Service workers, except private household	8.7	6.6	10.1	18.2	12.7	(1/)
Farmers, farm managers, laborers, and foremen	7.5	14.0	3.1	24.4	28.2	(1/)
Laborers, except farm and mine	9.5	23.6	-	10.8	17.3	(1/)

1/ Percent not shown where base is less than 100,000.

Source: U. S. Department of Labor, Bureau of Labor Statistics, Advance Summary Special Labor Force Report, "Employment of 1961 High School Graduates and Dropouts," October 1961, p. 4

Table 25

EMPLOYMENT STATUS, BY COLOR AND SEX, MICHIGAN 1940 TO 1960

Employment Status and Sex	1960			1950			1940		
	Total	White	Non-White	Total	White	Non-White	Total	White	Non-White
Both Sexes									
Population, All Ages	7,824,965	7,088,013	736,952	6,371,766	5,917,825	453,941	5,256,106	5,039,643	216,463
Total, 14 Years Old and Over	5,349,563	4,676,839	472,724	4,717,979	4,382,486	335,493	4,036,893	3,869,512	167,381
Labor Force	2,943,909	2,685,815	258,094	2,540,508	2,359,547	180,961	2,125,877	2,033,307	92,570
Armed Forces	13,561	12,364	1,197	10,448	9,229	1,219	3,550	3,535	15
Civilian Labor Force	2,930,348	2,673,451	256,897	2,530,060	2,350,318	179,742	2,122,327	2,029,772	92,555
Employed	2,726,864	2,511,881	214,983	2,393,574	2,235,361	158,213	1,821,403	1,758,695	62,708
Unemployed	203,484	161,570	41,914	136,486	114,957	21,529	300,924	271,077	29,847
Percent of Civilian Labor Force	6.9	6.0	16.3	5.4	4.9	12.0	14.2	13.4	32.2
Not in Labor Force	2,405,654	2,191,024	214,630	2,177,471	2,022,939	154,532	1,911,016	1,836,205	74,811
Male									
Population, All Ages	3,881,255	3,519,698	361,557	3,212,119	2,983,372	228,747	2,694,727	2,584,459	110,268
Total, 14 Years Old and Over	2,619,801	2,390,295	229,506	2,368,024	2,198,765	169,259	2,073,535	1,987,747	85,788
Labor Force	2,050,818	1,881,188	169,630	1,897,894	1,765,709	132,185	1,669,018	1,600,035	68,983
Armed Forces	13,369	12,215	1,154	9,976	8,816	1,160	3,550	3,535	15
Civilian Labor Force	2,037,449	1,868,973	168,476	1,887,918	1,756,893	131,025	1,665,468	1,596,500	68,968
Employed	1,898,034	1,757,949	140,085	1,786,025	1,670,105	115,920	1,423,909	1,377,896	46,013
Unemployed	139,415	111,024	28,391	101,893	86,788	15,105	241,559	218,604	22,955
Percent of Civilian Labor Force	6.8	5.9	16.9	5.4	4.9	11.5	14.5	13.7	33.3
Not in Labor Force	568,983	509,107	59,876	470,130	433,056	37,074	404,517	387,712	16,805
Female									
Population, All Ages	3,943,710	3,568,315	375,395	3,159,647	2,934,453	225,194	2,561,379	2,455,184	106,195
Total, 14 Years Old and Over	2,729,762	2,486,544	243,218	2,349,955	2,183,721	166,234	1,963,358	1,881,765	81,593
Labor Force	893,091	804,627	88,464	642,614	593,838	48,776	456,859	433,272	23,587
Armed Forces	192	149	43	472	413	59	...	...	...
Civilian Labor Force	892,899	804,478	88,421	642,142	593,425	48,717	456,859	433,272	23,587
Employed	828,830	753,932	74,898	607,549	565,256	42,293	397,494	380,799	16,695
Unemployed	64,069	50,546	13,523	34,593	28,169	6,424	59,365	52,473	6,892
Percent of Civilian Labor Force	7.2	6.3	15.3	5.4	4.7	13.2	13.0	12.1	29.2
Not in Labor Force	1,836,671	1,681,917	154,754	1,707,341	1,589,883	117,458	1,506,499	1,448,493	58,006

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 53.

A study of the educational background of job applicants by the M.E.S.C., November, 1960, showed that almost two-thirds of the unemployed job applicants had not completed high school.[33] An examination of the educational backgrounds of Michigan workers over 25 shows that in 1960, for urban residents, 40.9 per cent of the white labor force over age 25 had a high school education or higher, while only 25.2 per cent of the non-white labor force had this much education. (See Table 26). The contrasts between the backgrounds of rural farm and urban residents is also apparent in the fact that among the rural farm white members of the labor force, 32.7 per cent had a high school education or higher. For the non-white population this figure was 18.7 per cent.

Whether the lower employment rates of non-whites is a function of poorer educational background, lack of experience or training, or discrimination, it is apparent that in Michigan, non-white workers followed the national pattern of being concentrated in the lower manual occupations. For 1960 almost 39 per cent of the employed males were in operative or other semi-skilled manual work; other large groups were in the laborer, unskilled manual work, 14 per cent and 12 per cent in the manual skilled occupations. (See Table 27) Among the non-white women employed workers, more than 50 per cent were private household or service workers.

Among the unemployed, as might be expected, the same concentration of occupations is found. Of the experienced male unemployed in 1960 among the non-whites, 38.8 per cent were operatives or kindred workers, 23.3 per cent were laborers, and 9.9 per cent craftsmen. The comparable figures for whites is 34.4 per cent operatives, 14.6 per cent laborers, and 24.3 per cent craftsmen. (See Table 28). Among experienced non-white female unemployed workers, the largest concentrations are: 26.1 per cent service workers, 20.3 per cent private household workers, and 16.1 per cent operatives. For experienced white female workers the largest concentration of unemployed is among operatives and kindred workers, 35.4 per cent; sales workers, 18.8 per cent; and service workers, 15.5 per cent. In the cases for both males and females, the non-white population has more disadvantages than the white population, suffering from higher rates of unemployment and greater concentrations in the lowest skilled occupations and in industries with the greatest amounts of instability in employment. (See Table 29). In the cases of all workers, it is apparent that the patterns of unemployment show that the groups suffering most from the changing structure of the labor market are those with the lowest skills and with the poorest education.

Migration and Labor Markets

Have all the significant data upon which vocational education must be based been presented? Is it enough for local school administrators to know about national and statewide trends in employment and the factors which are related to unemployment? The answers rest on the type of labor market for which youths are being prepared.

The labor market is the focus for the analysis of employment and occupational activities. Labor markets, however, may be defined in a number of ways, depending upon the types of analysis or the discussion undertaken. For many purposes the labor market is adequately defined in purely geographic terms, although even here we must recognize the overlapping of local and regional markets. In other cases, it is possible to define labor markets in terms of given industries, or the production of given commodities, or even in terms of given union jurisdictions.[34] For our purposes, we shall define the labor market as a recognizable area of employment opportunities which provides a fixed number of persons within a given region, at a given time, with employment or potential employment.

A primary question, then, to be answered by the vocational educator is: For which labor markets local, statewide, regional, or national are we training our youths? If youths remain in the local community and work there or in geographically contiguous areas, preparation depends on local conditions, and training is for a local labor market. If youths seek work elsewhere, training and preparation must be for labor markets other than the local one. What is demanded of those responsible for the vocational education of youths in their communities is some knowledge of job-seeking behavior. How many youths remain in the community after terminating their educations? Which youths migrate elsewhere? How do patterns of migration for males and females differ?

If one prepares youths for labor force activity beyond the local labor market, local economic trends hardly provide a proper basis for adequate vocational training. On the other hand, preparing youths for the local labor market, must also reflect the changes in the broader economy which affect local labor market employment patterns. What significant local trends should be understood? What are the significant statewide, regional, and national trends?

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[33] Michigan Employment Security Commission, op. cit., p. 19.

[34] S. Nosow, "Labor Distribution and the Normative System" Social Force, October 1956, p. 26.

Table 26

Years of School Completed by Persons 25 Years Old and Over, by Color and Sex, for Michigan: 1960

Color, and Sex	Total 25 years old and over	Years of School Completed								
		None	Elementary School				High School		College	
			1 to 4	5 and 6	7	8	1 to 3	4	1 to 3	4 or More
The State.....	100.0	1.5	4.3	5.9	5.8	19.4	22.2	26.0	8.1	6.8
White.....	100.0	1.4	3.7	5.3	5.6	19.7	21.9	26.9	8.3	7.2
Nonwhite.....	100.0	2.2	10.9	11.9	8.3	16.1	25.4	16.8	5.5	2.9
Male.....	100.0	1.5	5.0	6.4	6.5	20.2	21.8	22.1	7.9	8.4
White.....	100.0	1.4	4.2	5.8	6.3	20.6	21.6	22.9	8.2	9.0
Nonwhite.....	100.0	2.7	13.5	13.1	8.6	16.3	23.5	14.2	5.0	3.0
Female.....	100.0	1.4	3.6	5.3	5.2	18.6	22.7	29.8	8.2	5.2
White.....	100.0	1.4	3.2	4.8	4.9	18.9	22.2	30.8	8.4	5.4
Nonwhite.....	100.0	1.8	8.3	10.8	8.0	15.8	27.2	19.4	6.0	2.8

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 47.

Table 27

Major Occupation Group of Employed Persons, by Sex and Color
Michigan: 1960

Occupation Group	Sex and Color			
	Male		Female	
	White	Nonwhite	White	Nonwhite
Total Employed.....	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers.....	11.0	3.5	14.1	7.4
Farmers and farm managers.....	3.2	.1	.4	--
Managers, officials and proprieters, ex, farms.....	9.7	1.9	3.4	1.2
Clerical and kindred workers.....	6.7	5.0	32.6	12.7
Sales workers.....	7.1	1.9	9.8	2.6
Craftsmen, foremen and kindred workers.....	22.3	12.3	1.2	.8
Operatives and kindred workers...	25.1	38.7	13.5	13.0
Private household workers.....	.1	.4	5.1	23.9
Service workers, except private household.....	5.1	11.5	14.6	26.9
Farm laborers and foremen.....	1.1	.5	.6	.2
Laborers, except farm and mine...	4.8	14.2	.5	1.2
Occupation not reported.....	3.5	10.0	4.4	10.0

* Columns may not equal 100.0 because of rounding.

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 58.

Table 28

Major Occupation Group of the Experienced Unemployed, by Color and Sex,
Michigan: 1960

Major Occupation Group	Male				Female			
	White		Nonwhite		White		Nonwhite	
	Total	Percent Distribution	Total	Percent Distribution	Total	Percent Distribution	Total	Percent Distribution
Total	107,057	100.0	26,539	100.0	47,242	100.0	11,585	100.0
Professional, technical, and kindred workers	3,141	2.9	222	0.8	1,079	2.3	179	1.5
Farmers and farm managers	546	0.5	5	...	28	0.1	12	0.1
Managers, officials and proprieters, ex, farms	2,692	2.5	144	0.5	530	1.1	53	0.5
Clerical and kindred workers	4,847	4.5	856	3.2	8,863	18.8	1,308	11.3
Sales workers	3,737	3.5	329	1.2	4,692	9.9	443	3.8
Craftsmen, foremen and kindred workers	26,015	24.3	2,620	9.9	645	1.4	86	0.7
Operatives and kindred workers	36,862	34.4	10,292	38.8	16,747	35.4	1,869	16.1
Private household workers	124	0.1	70	0.3	2,477	5.2	2,350	20.3
Service workers, except private household	5,136	4.8	2,268	8.5	7,486	15.8	3,020	26.1
Farm laborers and foremen	2,115	2.0	259	1.0	273	0.6	113	1.0
Laborers, except farm and mine	15,662	14.6	6,190	23.3	660	1.4	229	2.0
Occupation not reported	6,180	5.8	3,284	12.4	3,762	8.0	1,923	16.6

Source: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., 1962, Table 60.

Table 29

Industry Group of Employed Persons, by Color, Michigan: 1960, in Percentages

Industry group	Color	
	White	Nonwhite
Total Employed	100.0	100.0
Agriculture	3.6	0.6
Forestry and Fisheries	0.1	---
Mining	0.6	---
Construction	4.7	3.6
Manufacturing	38.2	35.1
Railroad and Railway Exp. Service	1.0	0.5
Trucking Service and Warehousing	1.5	0.6
Other Transportation	0.8	1.1
Communications	1.2	0.6
Utilities and San. Service	1.4	1.3
Wholesale Trade	3.1	1.7
Food and Dairy Product Stores	2.8	1.5
Eating and Drinking Places	2.7	2.8
Other Retail Trade	9.7	5.4
Finance, Insurance and Real Estate	3.5	1.3
Business Services	1.1	0.6
Repair Services	1.2	1.8
Private Households	1.8	8.9
Other Personal Services	2.3	5.8
Entertainment and Recreation Services	0.6	0.7
Educational Services: Government	4.6	2.9
Private	1.1	0.5
Welfare, Religious, and Nonprofit Mem. Organizations	1.2	1.2
Hospitals	2.6	6.1
Other Professional and Related Services	2.5	1.5
Public Administration	3.3	5.5
Industry not reported	2.8	8.4

Source: U. S. Bureau of the Census. U. S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U. S. Government Printing Office, Washington, D. C., Table 61.

Appropriate planning on the part of administrators might start with some analysis of labor market participation by youths of the community. The ideal situation, of course, is to have continual follow-up studies. This would give an absolute picture of the labor force patterns for the youths trained in the local community. This microscopic analysis, while valuable for the diagnosis of patterns and trends, might miss the broader changes which affect the particular community.

Other techniques can rely essentially upon census data. What has been happening to the population of given local communities? What has been happening to employment patterns? If migration has significantly affected local populations, how must this be translated into vocational training? If industrial trends have significantly affected local job opportunities, how might these be translated into vocational training?

Judging from the specific offerings and the types of orientations of the local school systems, the more traditional concepts of a labor market remain, in terms of purely local job opportunities. When society is founded upon an agricultural base and the service industries tied to the agricultural community, such a concept of vocational education is suited to the needs of youth and of the entire community.

However, this concept and the vocational needs of youth, is being questioned because of data which reflect changing economic and demographic characteristics of communities and of broader regions.

Studies of the demographic changes in recent decades indicate the tremendous mobility of the population. About 7 per cent of all male workers in the United States, for example, do not reside in the same county in which they resided a year previously. More than 5 per cent of the nation's inhabitants move from one county to another in the course of a year.[35]

In Michigan, the changes have been no less pronounced. During the decade of the 1950's, 156,000 persons migrated to Michigan, which constituted 2.4 per cent of the state's population in 1950.[36] Of course, population growth and population changes due to in-or out-migration did not affect all of Michigan's counties in the same way.

Populous counties have tended to gain population, while the least populous continue to lose population. In fact, maximum population was reached in Antrim, Manistee, Menominee, and Sanilac counties in 1900. (See Table 30). This pattern of maximum population during previous decades typifies most of the Upper Peninsula and northern lower peninsula counties. In contrast 19 southern Michigan counties have more than doubled population since 1910. In Michigan, 18 counties have less than 10,000 population while 16 counties have 100,000 or more. As might be expected, 15 of the 18 least populous counties are entirely rural, while 11 of the 16 most populous are more urban than rural.[37]

The distribution of population has market significance for the patterns of industrial growth and development. The larger the concentration of population, the more services may be provided in the community. The notable increase in trade and services in Michigan is directly related to the increase in urban concentrations of population.

The extent to which this concentration of population is a function of migration is quite clear from the changes during the past two decades. Contrast Macomb County which had a 78 per cent in-migration during the 1950's with Alger or Missaukee counties with their more than 20 per cent out-migration for the same decade. This does not mean that all persons from the Upper Peninsula go to Macomb County, or even remain in the state, but it does mean that most of them go to the more populous parts of the state. (See Tables 31 and 32). While there are no actual figures which show the extent to which particular age groups leave or enter given counties, one can make significant inferences about the likelihood of any age group's leaving or remaining.

To point up the significance of out-migration to vocational education, a cohort analysis was made of specific age groups which provide new entrants into the labor force. We were interested in finding out how many of those youths who entered the labor force between 1950 and 1960 remained in their local communities.* Recognizing natural changes in population and some in-migration in

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[35]Bogue, op. cit., p. 375.

[36]J. F. Thaden, "Population of Michigan Counties -- Projection to 1970," Technical Bulletin B-24 E. Lansing, Michigan: Institute for Community Development, Continuing Education Service, Michigan State University, 1962, p. 12.

[37]Ibid., p. 22.

*Since the census provides us with demographic and labor force data for counties, the county was operationally established as the geographic bounds of the local community and the local labor market.

Table 30

Population of Michigan by Counties: 1900 to 1960

County	1960	1950	1940	1930	1920	1910	1900
Alcona	6,352	5,856	5,463	4,989	5,912	5,703	5,691
Alger	9,250	10,007	10,167	9,327	9,983	7,675	5,868
Allegan	57,729	47,493	41,839	38,974	37,540	39,819	38,812
Alpena	28,556	22,189	20,766	18,574	17,869	19,965	18,254
Antrim	10,373	10,721	10,964	9,979	11,543	15,692	16,568
Arenac	9,860	9,644	9,233	8,007	9,460	9,640	9,821
Baraga	7,151	8,037	9,356	9,168	7,662	6,127	4,320
Barry	31,738	26,183	22,613	20,928	21,383	22,633	22,514
Bay	107,042	88,461	74,981	69,474	69,548	68,238	62,378
Benzie	7,834	8,306	7,800	6,587	6,947	10,638	9,685
Berrien	149,865	115,702	89,117	81,066	62,653	53,622	49,165
Branch	34,903	30,202	25,845	23,950	23,997	25,605	27,813
Calhoun	138,858	120,813	94,206	87,043	72,918	56,638	49,315
Cass	36,932	28,185	21,910	20,888	20,395	20,624	20,876
Charlevoix	13,421	13,475	13,031	11,981	15,788	19,157	13,956
Cheboygan	14,550	13,731	13,644	11,502	13,991	17,872	15,516
Chippewa	32,655	29,206	27,807	25,047	24,818	24,472	21,338
Clare	11,647	10,253	9,163	7,032	8,250	9,240	8,360
Clinton	37,969	31,195	26,671	24,174	23,110	23,129	25,136
Crawford	4,971	4,151	3,765	3,097	4,049	3,934	2,943
Delta	34,298	32,913	34,037	32,280	30,909	30,108	23,881
Dickinson	23,917	24,844	28,731	29,941	19,456	20,524	17,890
Eaton	49,684	40,023	34,124	31,728	29,377	30,499	31,668
Emmet	15,904	16,534	15,791	15,109	15,639	18,561	15,931
Genesee	374,313	270,963	227,944	211,641	125,668	64,555	41,804
Gladwin	10,769	9,451	9,385	7,424	8,827	8,413	6,564
Gogebic	24,370	27,053	31,797	31,577	33,225	23,333	16,738
Grand Traverse	33,490	28,598	23,390	20,011	19,518	23,784	20,479
Gratiot	37,012	33,429	32,205	30,252	33,914	28,820	29,889
Hillsdale	34,742	31,916	29,092	27,417	28,161	29,673	29,865
Houghton	35,654	39,771	47,631	52,851	71,930	88,098	66,063
Huron	34,006	33,149	32,584	31,132	32,786	34,758	34,162
Ingham	211,296	172,941	130,616	116,587	81,554	53,310	39,818
Ionia	43,132	38,158	35,710	35,093	33,087	33,550	34,329
Iosco	16,505	10,906	8,560	7,517	8,199	9,753	10,246
Iron	17,184	17,692	20,243	20,805	22,107	15,164	8,990
Isabella	35,348	28,964	25,982	21,126	22,610	23,029	22,784
Jackson	131,994	108,168	93,108	92,304	72,539	53,426	48,222
Kalamazoo	169,712	126,707	100,085	91,368	71,225	60,427	44,310
Kalkaska	4,382	4,597	5,159	3,799	5,577	8,097	7,133
Kent	363,187	288,292	246,338	240,511	183,041	159,145	129,714

Table 30 (con't)

County	1960	1950	1940	1930	1920	1910	1900
Keweenaw	2,417	2,918	4,004	5,076	6,322	7,156	3,217
Lake	5,338	5,257	4,798	4,066	4,437	4,939	4,957
Lapeer	41,926	35,794	32,116	28,348	25,782	26,033	27,641
Leelanau	9,321	8,647	8,436	8,206	9,061	10,608	10,556
Lenawee	77,789	64,629	53,110	49,849	47,767	47,907	48,406
Livingston	38,233	26,725	20,863	19,274	17,522	17,736	19,664
Luce	7,827	8,147	7,423	6,528	6,149	4,004	2,983
Mackinac	10,853	9,287	9,438	8,783	8,026	9,249	7,703
Macomb	405,804	184,961	107,638	77,146	38,103	32,606	33,244
Manistee	19,042	18,524	18,450	17,409	20,899	26,688	27,856
Marquette	56,154	47,654	47,144	44,076	45,736	46,739	41,239
Mason	21,929	20,474	19,378	18,756	19,831	21,832	18,885
Mecosta	21,051	18,968	16,902	15,738	17,765	19,466	20,693
Menominee	24,685	25,299	24,883	23,652	23,778	25,648	27,046
Midland	51,450	35,662	27,094	19,150	17,237	14,005	14,439
Missaukee	6,784	7,458	8,034	6,992	9,004	10,606	9,308
Monroe	101,120	75,666	58,620	52,485	37,115	32,917	32,754
Montcalm	35,795	31,013	28,581	27,471	30,441	32,069	32,754
Montmorency	4,424	4,125	3,840	2,814	4,089	3,755	3,234
Muskegon	149,943	121,545	94,501	84,630	62,362	40,577	37,036
Newaygo	24,160	21,567	19,286	17,029	17,378	19,220	17,673
Oakland	690,259	396,001	254,068	211,251	90,050	49,576	44,792
Oceana	16,547	16,105	14,812	13,805	15,601	18,379	16,644
Ogemaw	9,680	9,345	8,720	6,595	7,786	8,907	7,765
Ontonagon	10,584	10,282	11,359	11,114	12,428	8,650	6,197
Osceola	13,595	13,797	13,309	12,806	15,221	17,889	17,859
Oscoda	3,447	3,134	2,543	1,728	1,783	2,027	1,468
Otsego	7,545	6,435	5,827	5,554	6,043	6,552	6,175
Ottawa	98,719	73,751	59,660	54,858	47,660	45,301	39,667
Presque Isle	13,117	11,996	12,250	11,330	12,131	11,249	8,821
Roscommon	7,200	5,916	3,668	2,055	2,032	2,274	1,787
Saginaw	190,752	153,515	130,468	120,717	100,286	89,290	81,222
St. Clair	107,201	91,599	76,222	67,563	58,009	52,341	55,228
St. Joseph	42,332	35,071	31,749	30,618	26,818	25,499	23,889
Sanilac	32,314	30,837	30,114	27,751	31,237	33,930	35,055
Schoolcraft	8,953	9,148	9,524	8,451	9,977	8,681	7,887
Shiawassee	53,446	45,967	41,207	39,517	35,924	33,246	33,866
Tuscola	43,305	38,258	35,694	32,934	33,320	34,913	35,890
Van Buren	48,395	39,184	35,111	32,637	30,715	33,185	33,274
Washtenaw	172,440	134,606	80,810	65,530	49,520	44,714	47,761
Wayne	2,666,297	2,435,235	2,015,623	1,888,946	1,177,645	531,590	348,793
Wexford	18,466	18,628	17,976	16,827	18,207	20,769	16,845
MICHIGAN	7,823,194	6,372,009	5,256,106	4,842,325	3,668,412	2,810,172	2,420,982

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962.

Table 31

Natural Increase Rates and Net Migration Rates, by Counties of Michigan: Intercensal Periods 1940-1950 and 1950-1960

County	Natural Increase Rate[a] 1940-1950	Natural Increase Rate[a] 1950-1960	Net Migration Rate 1940-1950[b]	Net Migration Rate 1950-1960[c]
Alcona	10.1	8.0	-2.9	0.2
Alger	16.3	13.0	-17.4	-20.1
Allegan	9.9	15.7	3.6	4.1
Alpena	14.7	18.9	-8.0	7.1
Antrim	8.3	9.0	-9.8	-12.0
Arenac	9.2	10.6	-4.6	-8.4
Baraga	9.5	9.5	-22.4	-20.1
Barry	7.8	12.2	8.2	7.7
Bay	15.2	18.7	1.8	0.4
Benzie	8.4	9.6	-1.5	-15.0
Berrien	12.0	18.0	16.0	8.9
Branch	7.3	9.9	9.5	4.8
Calhoun	12.2	16.2	14.0	-2.5
Cass	4.8	8.2	23.7	21.4
Charlevoix	10.1	10.3	-6.2	-10.7
Cheboygan	11.9	13.8	-11.0	-8.3
Chippewa	15.7	20.1	-10.7	-9.5
Clare	11.9	15.4	-0.2	-2.9
Clinton	12.1	18.9	4.4	0.8
Crawford	6.8	13.2	3.7	5.3
Delta	11.3	14.5	-14.0	-10.6
Dickinson	11.0	10.3	-23.2	-13.9
Eaton	10.2	15.8	7.0	6.5
Emmet	11.5	13.1	-6.5	-16.7
Genesee	16.0	23.7	1.8	9.8
Gladwin	14.3	13.6	-13.3	-0.6
Gogebic	9.8	7.7	-23.5	-17.2
Grand Traverse	11.6	15.1	10.1	0.6
Gratiot	13.1	16.7	-9.8	-6.8
Hillsdale	8.9	12.3	-0.1	-4.0
Houghton	5.1	4.3	-22.1	-14.5
Huron	13.4	17.4	-11.4	-15.0
Ingham	15.3	20.1	9.6	-0.1
Ionia	10.2	14.4	-3.2	-2.3
Iosco	11.2	19.7	15.5	26.6
Iron	9.4	7.7	-20.7	-10.4
Isabella	14.2	18.1	-7.0	2.0
Jackson	11.0	15.5	4.6	5.1
Kalamazoo	13.0	17.5	9.8	13.5
Kalkaska	9.4	8.2	-19.6	-12.6
Kent	12.4	18.8	4.0	4.8

Table 31 (con't)

County	Natural Increase Rate[a] 1940-1950	Natural Increase Rate[a] 1950-1960	Net Migration Rate 1940-1950[b]	Net Migration Rate 1950-1960[c]
Keweenaw	2.1	-1.6	-28.7	-15.7
Lake	4.0	3.1	5.8	-1.6
Lapeer	9.3	14.6	2.2	1.3
Leelanau	9.3	13.7	-6.5	-6.4
Lenawee	11.9	16.4	7.8	2.3
Livingston	9.3	15.3	18.6	24.6
Luce	11.4	11.7	-1.8	-15.4
Mackinac	12.0	16.3	-13.3	-0.8
Macomb	18.3	25.9	47.7	78.1
Manistee	7.9	9.8	-7.0	-7.1
Marquette	10.3	13.2	-9.6	3.5
Mason	8.8	10.9	-2.8	-4.2
Mecosta	9.4	12.0	0.1	-1.7
Menominee	13.1	12.8	-11.2	-15.1
Midland	22.1	25.2	6.6	13.5
Missaukee	13.4	12.9	-19.6	-21.3
Monroe	11.7	19.0	16.2	11.4
Montcalm	9.6	13.4	-0.5	1.1
Montmorency	13.1	11.9	-5.7	-5.1
Muskegon	18.2	21.0	8.3	0.0
Newaygo	10.8	14.7	1.0	-3.6
Oakland	17.4	23.1	34.5	42.6
Oceana	8.8	13.5	0.1	-10.9
Ogemaw	10.9	10.1	-3.9	6.7
Ontonagon	7.2	10.6	-16.0	-7.8
Osceola	11.8	11.9	-7.6	-13.2
Oscoda	11.0	11.7	11.5	-2.3
Otsego	12.1	15.5	-2.0	0.4
Ottawa	15.1	19.5	6.6	11.1
Presque Isle	15.3	18.9	-16.9	-10.4
Roscommon	10.5	9.9	48.0	10.7
Saginaw	14.7	20.3	2.1	1.5
St. Clair	11.9	15.1	7.6	0.6
St. Joseph	10.2	12.1	0.5	7.3
Sanilac	10.9	12.8	-8.0	-8.4
Schoolcraft	13.5	15.4	-16.8	-17.4
Shiawassee	12.2	17.5	-0.7	-2.6
Tuscola	11.2	14.7	-3.8	-2.5
Van Buren	6.4	11.1	5.8	11.1
Washtenaw	14.5	20.0	25.8	5.2
Wayne	13.6	17.6	5.9	-9.0
Wexford	11.4	13.3	-7.5	-14.1
MICHIGAN	13.3	18.1	6.2	2.5

a. Corrected for underregistration of births
b. Migration as a percentage of 1940 population
c. Migration as a percentage of 1950 population

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, Mar. 1962

Table 32

Components of Population Change in Counties of Michigan: 1940 to 1960

County	1950 to 1960			1940 to 1950		
	Population Change	Natural Increase[a]	Net Migration	Population Change	Natural Increase[a]	Net Migration
Alcona	496	484	12	416	575	-159
Alger	-757	1,257	-2,014	-114	1,645	-1,759
Allegan	10,236	8,285	1,951	5,924	4,445	1,479
Alpena	6,367	4,787	1,580	1,504	3,152	-1,648
Antrim	-348	942	-1,290	-173	896	-1,069
Arenac	216	1,030	-814	449	868	-419
Baraga	-886	726	-1,612	-1,261	819	-2,080
Barry	5,555	3,551	2,004	3,746	1,904	1,842
Bay	18,581	18,217	364	13,700	12,388	1,312
Benzie	-472	777	-1,249	557	672	-115
Berrien	34,163	23,918	10,245	26,605	12,321	14,284
Branch	4,701	3,247	1,454	4,497	2,043	2,454
Calhoun	18,045	21,039	-2,994	26,315	13,045	13,270
Cass	8,747	2,719	6,028	6,384	1,210	5,174
Charlevoix	-54	1,382	-1,436	532	1,329	-797
Cheboygan	819	1,954	-1,135	132	1,630	-1,498
Chippewa	3,449	6,212	-2,763	1,499	4,464	-2,965
Clare	1,394	1,695	-301	1,134	1,149	-15
Clinton	6,774	6,541	233	4,666	3,509	1,157
Crawford	820	600	220	404	266	138
Delta	1,385	4,864	-3,479	-977	3,776	-4,753
Dickinson	-927	2,532	-3,459	-3,711	2,920	-6,631
Eaton	9,661	7,068	2,593	6,130	3,753	2,377
Emmet	-630	2,128	-2,758	834	1,858	-1,024
Genesee	103,350	76,697	26,653	43,842	39,840	4,002
Gladwin	1,318	1,371	-53	108	1,348	-1,240
Gogebic	-2,683	1,958	-4,641	-4,576	2,853	-7,429
Grand Traverse	4,892	4,709	183	5,346	3,008	2,338
Gratiot	3,583	5,863	-2,280	1,132	4,313	-3,181
Hillsdale	2,826	4,088	-1,262	2,718	2,745	-27
Houghton	-4,117	1,639	-5,756	-8,431	2,234	-10,665
Huron	857	5,830	-4,973	699	4,402	-3,703
Ingham	38,355	38,589	-234	36,656	23,561	13,095
Ionia	4,974	5,839	-865	2,645	3,774	-1,129
Iosco	5,599	2,702	2,897	2,398	1,079	1,319
Iron	-508	1,335	-1,843	-2,400	1,763	-4,163
Isabella	6,384	5,813	571	2,063	3,956	-1,893
Jackson	24,069	18,552	5,517	15,280	11,027	4,253
Kalamazoo	43,005	25,878	17,127	24,794	14,807	9,987
Kalkaska	-215	366	-581	-549	459	-1,008
Kent	74,895	61,040	13,855	42,926	33,137	9,789

Table 32 (con't)

County	1950 to 1960 Population Change	1950 to 1960 Natural Increase[a]	1950 to 1960 Net Migration	1940 to 1950 Population Change	1940 to 1950 Natural Increase[a]	1940 to 1950 Net Migration
Keweenaw	-501	-43	-458	-1,072	73	-1,145
Lake	81	163	-82	479	203	276
Lapeer	6,132	5,672	460	3,857	3,156	701
Leelanau	674	1,228	-554	249	793	-544
Lenawee	13,160	11,673	1,487	11,222	7,066	4,156
Livingston	11,508	4,942	6,566	6,042	2,204	3,838
Luce	-320	935	-1,255	753	885	-132
Mackinac	1,566	1,639	-73	-130	1,122	-1,252
Macomb	220,843	76,357	144,486	77,844	26,722	51,122
Manistee	518	1,829	-1,311	168	1,456	-1,288
Marquette	8,500	6,823	1,677	312	4,873	-4,561
Mason	1,455	2,312	-857	1,221	1,753	-532
Mecosta	2,083	2,408	-325	1,722	1,707	15
Menominee	-614	3,207	-3,821	491	3,273	-2,782
Midland	15,788	10,970	4,818	8,708	6,923	1,785
Missaukee	-674	915	-1,589	-529	1,038	-1,567
Monroe	25,454	16,830	8,624	17,272	7,830	9,442
Montcalm	4,782	4,448	334	2,705	2,848	-143
Montmorency	299	509	-210	303	521	-218
Muskegon	28,398	28,430	-32	27,426	19,646	7,780
Newaygo	2,593	3,367	-774	2,404	2,205	199
Oakland	294,258	125,514	168,744	143,461	56,282	87,179
Oceana	442	2,193	-1,751	1,388	1,368	20
Ogemaw	335	962	-627	647	984	-337
Ontonagon	302	1,102	-800	-1,031	778	-1,809
Osceola	-202	1,623	-1,825	583	1,582	-999
Oscoda	313	384	-71	601	310	291
Otsego	1,110	1,083	27	627	744	-117
Ottawa	24,968	16,781	8,187	14,032	10,077	3,955
Presque Isle	1,121	2,368	-1,247	-209	1,848	-2,057
Roscommon	1,284	650	634	2,258	501	1,757
Saginaw	37,237	35,000	2,237	23,538	20,748	2,787
St. Clair	15,602	15,018	584	15,743	9,949	5,794
St. Joseph	7,261	4,694	2,567	3,565	3,398	167
Sanilac	1,477	4,054	-2,577	909	3,315	-2,406
Schoolcraft	-195	1,397	-1,592	-338	1,260	-1,598
Shiawassee	7,479	8,696	-1,217	5,002	5,306	-304
Tuscola	5,047	6,020	-973	2,764	4,120	-1,356
Van Buren	9,211	4,865	4,346	4,396	2,373	2,023
Washtenaw	37,834	30,800	7,034	40,758	16,559	24,199
Wayne	231,062	450,689	-219,627	421,943	302,777	119,166
Wexford	- 162	2,465	-2,627	734	2,078	-1,344
MICHIGAN	1,451,428	1,289,196	162,232	1,106,658	777,597	329,061

a - corrected for underregistration of births.

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962.

the various age groups, we feel that the analysis gives a fairly accurate indication of the number of youths trained in the local community who are likely to remain in it.

Those persons who were 5-9 years old in 1950 would be 15-19 years old in 1960. This group would have entered the labor force in the latter part of the 1950's. Those persons who were 10-14 in 1950 were in the 20-24 year age group in 1960, and would have entered the labor force all through the 1950's. Those persons who were in the 15-19 year age group in 1950 started to enter the labor force during the early 1950's and constituted the 25-29 year old group in 1960.

As an example, there were 180 persons in the 5 to 9-year-old group in Alcona County in 1950. If there had been no deaths and no in- or out-migrations, there should have been 180 persons in the 15-19 age group in 1960. However, there was an 11.7 per cent decrease in this number, an 8.5 per cent decrease for males and a 15.1 per cent decrease for females. (See Table 33). The group which was 10-14 years old in 1950 and 20-24 in 1960 had decreased by 45.9 per cent, and the group which was 15-19 in 1950 and 25-29 in 1960 had decreased by 40.9 per cent. Although the over-all net change in the population through migration was only 1.4 per cent, it is clear that the youths of this county left in very large numbers during the 1950's, which balanced by some in-migration of older persons. Alger County, with the same large declines in the numbers of youths and young adults, did not have this out-migration balanced by the in-migration of other age groups and shows an over-all net out-migration of 20.6 per cent. Fifty-four of Michigan's 83 counties had some loss through migration during the decade of the 1950's. Thirty-six counties had more than 40 per cent net out-migration of youths who were between 10-14 and 20-24 during the decade, and 35 counties which had a net out-migration of 30 per cent or more for those between ages 15-19 and 25-29 during the decade.

These statistics show that a very large segment of Michigan's youthful population leaves local communities to seek work elsewhere. The largest proportion undoubtedly go to urban centers within the state and become part of the statistics showing the tremendous growths of population for such counties as Oakland, Macomb, and Genesee. Unfortunately, some of the movement for many counties is obscured by the census procedure started in 1950 of counting youths as residents of counties in which they are attending college; this would have a large effect on Ingham, Kalamazoo, and Washtenaw counties.

To what extent should one assume that these patterns of mobility, population growth and decline will continue? Dr. J. F. Thaden of Michigan State University has made demographic projections for all of Michigan and its counties for 1970 using three different methods. (See Table 34). In all three cases the projections are based upon past trends.

Projections A and C are both based upon the dynamic forces which have been gaining or losing momentum over the past two decades. Projection B is more static, neglecting the direction of these trends. There undoubtedly are populations which reach an equilibrium point, beyond which populations change little and migration just about disappears; for example, Alcona or Barry counties in the Upper Peninsula or Lapeer county in the lower.

The projections for each of the counties, however, do show many losses over the next decade and in every case these losses arise through out-migration of youths. Forty-three counties are expected to lose population during the 1960-70 intercensal period, from a small loss of 100 persons for Lake or Oscoda counties to a large one of 145,000 for Wayne county. In the latter case, it is unlikely that the movement, essentially residential, will affect labor market patterns. In the former cases, however, these reinforce previous trends which have already radically affected the labor market and vocational needs of the youth of these communities.

Vocational Training for Local Labor Markets

Most of the youths of Michigan, the largest proportion of which are concentrated in the metropolitan areas, initially seek work within these areas. Metropolitan school administrators, in responding to the vocational needs of youth, must build their programs upon the broader occupational trends which have been discussed. The patterns of occupational distribution and the needs of metropolitan labor markets reflect those trends which exist for the state and for the nation. Is this also true for school administrators in the less populous school districts?

Counties which have lost the largest number of youths through migration represent a large proportion of the local school districts within the state, although not a comparable proportion of students. Problems of vocational curricular planning facing school administrators in these less urbanized areas are quite different from those which exist in the urban centers. Vocational planning could be based on local needs or upon the needs of those youths who will leave the community. Does it make sense any longer to prepare youths for local labor markets? Is it financially possible to prepare youths both for local conditions and for labor market conditions more characteristic of the state or of the nation as a whole?

Table 33

Changes in the Population Composition of Youth Who Were of High School Age During 1950-1960, and Net Migration Change for the Total Population 1950-1960, By County, Michigan

Counties	Change in Number of Youths Who Were 5-9 in 1950 and 15-19 in 1960			Change in Number of Youths Who Were 10-14 in 1950 and 20-24 in 1960			Change in Number of Youths Who Were 15-19 in 1950 and 25-29 in 1960			Change Through Migration(a) 1950-1960
	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Alcona	-11.7	- 8.5	-15.1	-45.9	-50.3	-40.0	-40.9	-44.1	-36.5	- 1.4
Alger	-33.3	-33.5	-33.0	-55.7	-58.0	-53.4	-38.6	-40.6	-36.7	-20.6
Allegan	- 5.1	- 5.9	- 4.4	-21.3	-26.6	-15.7	- 4.5	- 9.5	+ 0.9	+ 1.8
Alpena	- 2.2	- 7.1	-13.0	-18.6	-25.4	-11.1	0.0	--	--	+ 7.9
Antrim	-24.9	-24.4	-25.4	-59.4	-60.2	-58.4	-47.2	-50.8	-43.2	-13.1
Arenac	-19.1	-16.8	-17.8	-49.0	-49.9	-48.1	-41.8	-40.5	-43.1	- 9.2
Baraga	-36.2	-35.0	-37.5	-61.2	-62.1	-60.2	-47.7	-50.2	-45.1	-22.8
Barry	- 1.6	- 1.3	- 2.0	-21.1	-23.1	-19.0	- 8.0	- 9.9	- 5.8	+ 7.7
Bay	- 6.9	-11.0	- 2.7	-16.6	-23.5	- 9.5	- 4.0	- 2.4	- 5.4	- 1.2
Benzie	-23.1	-21.2	-24.0	-51.8	-53.9	-49.8	-44.3	-43.2	-45.5	-17.2
Berrien	+ 4.7	+ 1.6	+ 7.9	- 4.0	-13.0	+ 5.1	+15.2	+13.5	+16.8	+ 8.1
Branch	+ 5.5	+10.6	+ .4	-20.8	-26.1	-14.4	-10.7	-11.0	-10.3	+ 4.6
Calhoun	+ 2.2	--	+ 3.8	+ 4.4	- 1.2	+10.2	- .8	-10.3	+10.8	- 3.1
Cass	+ 4.8	+ 4.0	+ 5.6	-21.6	-30.1	-11.9	+15.5	+13.4	+17.4	+20.5
Charlevoix	-24.3	-23.0	-25.6	-53.5	-56.7	-49.9	-38.3	-43.6	-32.8	-12.6
Cheboygan	-20.2	-19.3	-16.7	-46.2	-50.9	-47.2	-34.8	-39.9	-27.3	-11.2
Chippewa	-10.0	- 7.0	-13.3	- 2.7	+13.0	-19.7	-14.4	- 9.4	-19.8	-10.5
Clare	-12.0	-16.3	- 7.0	-43.7	-47.3	-39.9	-26.0	-25.4	-26.5	- 3.7
Clinton	-12.7	-16.1	- 8.9	-21.8	-26.6	-16.8	+ .6	- 2.5	+ 3.7	+ .6
Crawford	-10.2	-13.7	- 6.5	-32.9	-29.3	-36.6	+ 4.5	+31.4	-21.1	+ 3.5
Delta	-23.3	-23.6	-22.9	-50.7	-55.2	-46.0	-34.0	-36.7	-31.3	-11.5
Dickinson	-26.3	-29.7	-22.6	-53.3	-61.1	-44.8	-39.5	-43.7	-35.2	- 9.4
Eaton	--	- 2.0	+ 2.3	-17.2	-20.7	-13.4	--	- 3.2	+ 2.6	+ 6.8
Emmet	-25.2	-26.5	-24.0	-52.8	-57.3	-48.5	-41.6	-40.1	-43.0	-18.9
Genesee	+ 3.8	- .8	+ 8.4	+ 6.6	- 4.9	+18.4	+31.8	+32.4	+31.2	+ 8.5
Gladwin	-13.8	-13.5	-14.1	-47.6	-45.5	-49.9	-30.0	-33.7	-26.2	- 1.8
Gogebic	-27.3	-29.5	-24.9	-64.7	-70.6	-58.6	-46.9	-48.9	-44.8	-17.6
Grand Traverse	+ .8	- .7	+ 2.3	-26.9	-30.8	-23.3	- 4.7	- 4.9	- 4.4	- .6
Gratiot	- 5.6	- 8.5	- 2.5	-17.2	-22.7	-11.4	-18.4	-21.9	-14.7	- 6.8
Hillsdale	- 4.9	- 7.6	- 2.0	-21.6	-26.1	-16.5	-23.4	-27.5	-19.0	- 4.2
Houghton	- 3.2	+ 7.9	-15.2	- 7.3	+19.4	-34.8	-41.5	-38.5	-45.0	-14.6
Huron	-21.1	-22.6	-19.5	-48.8	-49.3	-48.3	-36.5	-37.9	-35.1	-15.2
Ingham	+32.4	+27.6	+37.4	+59.5	+54.9	+64.6	+ 5.4	+10.6	+ .3	0.0
Ionia	+ 2.5	+15.1	-11.4	+ 4.3	+32.9	-25.9	-18.3	-24.7	- 9.9	- 2.9
Iosco	+ 5.5	+ 2.6	+ 8.5	+32.4	+38.8	+25.5	+49.6	+62.2	+37.3	+24.0

Table 33 (con't)

Iron	-21.6	-25.2	-17.7	-59.4	-64.3	-53.7	-36.5	-43.7	-29.4	-11.1
Isabella	+44.6	+35.5	+53.5	+ 8.7	+47.2	+50.2	-25.3	-17.1	-32.8	+ 1.7
Jackson	+ .6	- 2.3	+ 3.6	+ .7	- 1.6	+ 3.1	+28.1	+46.9	+10.4	+ 4.2
Kalamazoo	+31.1	+18.5	+44.8	+49.4	+38.0	+51.7	+23.7	+31.4	+16.9	+12.9
Kalkaska	-32.5	-30.8	-34.1	-65.9	-65.6	-66.2	-43.8	-52.3	-33.7	-13.9
Kent	+ 4.7	- 1.1	+10.7	+ 3.3	- 9.1	+15.9	+11.7	+11.6	+11.8	+ 4.2
Keweenaw	-24.2	-22.4	-26.9	-43.8	-35.5	-54.7	-46.2	-37.0	-55.6	-16.8
Lake	-25.2	-29.2	-20.5	-61.4	-66.5	-56.0	-42.5	-46.8	-37.7	- 2.7
Lapeer	+ 3.5	+ 2.6	+ 4.5	-22.9	-28.6	-16.6	-17.4	-22.3	-12.0	- 1.1
Leelanau	-21.4	-20.7	-22.2	-40.8	-37.5	-44.4	-35.6	-37.2	-33.9	- 7.7
Lenawee	+ 6.2	- 1.5	+14.0	-11.9	-20.1	- 3.2	- 6.4	- 3.3	- 9.2	+ 1.2
Livingston	+ 9.1	+ 9.9	+ 8.3	- 7.9	-16.3	+ 1.5	+25.5	+22.5	+28.6	+23.7
Luce	-19.0	-21.1	-17.0	-56.2	-59.9	-51.8	-37.1	-40.0	-34.7	-16.6
Mackinac	-18.6	-24.9	-11.3	-37.7	-37.8	-37.7	-21.2	-19.4	-23.1	- .3
Macomb	+29.2	+21.9	+37.0	+45.2	+22.6	+69.4	+136.3	+114.1	+158.9	+77.9
Manistee	-17.8	-18.8	-16.8	-39.2	-44.7	-33.8	-30.2	-29.7	-30.8	- 8.0
Marquette	- 2.1	- 5.8	+ 2.0	+ 3.4	+ 5.3	+ 1.3	+10.9	+31.6	- 8.0	+ 3.3
Mason	-13.6	-14.2	-12.8	-38.9	-41.2	-36.6	-24.5	-30.4	-18.2	- 5.3
Mecosta	+49.4	+79.3	+19.1	+39.3	+77.2	- 4.0	-32.3	-29.5	-35.4	- 1.9
Menominee	-25.5	-24.2	-27.0	-58.1	-59.9	-56.2	-38.5	-41.4	-35.5	-15.4
Midland	- 9.5	-12.0	- 7.0	-21.1	-32.7	- 9.6	+35.8	+30.6	+40.6	+13.0
Missaukee	-33.2	-29.1	-37.1	-62.7	-63.4	-62.0	-56.0	-59.6	-52.2	-22.4
Monroe	- 1.7	- 4.2	+ 1.0	-13.9	-22.0	- 5.6	+11.5	+10.7	+12.3	+10.9
Montcalm	- 9.7	-10.7	- 8.7	-27.1	-31.0	-19.6	-11.8	-14.5	- 9.0	0.0
Montmorency	-11.1	- 6.6	-15.4	-64.7	-64.9	-64.5	-49.3	-50.8	-47.6	- 7.7
Muskegon	- 7.2	-11.1	- 3.1	-21.3	-30.0	-12.7	+ .9	+ .8	+ 1.0	- 1.0
Newaygo	-15.0	-17.1	-12.7	-40.3	-47.1	-33.2	-25.6	-26.9	-24.3	- 4.6
Oakland	+16.9	+13.4	+20.6	+ 8.3	- 6.8	+24.2	+67.2	+58.7	+75.6	+42.0
Oceana	-19.7	-19.4	-20.1	-45.6	-49.4	-41.5	-35.4	-38.1	-32.5	-11.4
Ogemaw	-17.5	-15.4	-17.7	-48.3	-54.0	-41.6	-39.5	-36.5	-42.4	- 7.4
Ontonagon	-27.7	-28.2	-27.2	-46.8	-48.1	-45.3	-27.1	-23.1	-31.6	- 8.9
Osceola	-29.7	-31.7	-21.6	-48.2	-51.3	-44.6	-40.6	-47.7	-33.0	-13.1
Oscoda	-17.4	-23.5	-10.0	-57.2	-57.0	-57.4	-39.3	-36.4	-41.8	- 4.1
Otsego	- 1.4	--	+ 3.3	-41.8	-48.8	-34.4	-26.9	-30.7	-23.1	- .5
Ottawa	+ 6.5	+ 3.4	+ 9.8	- .3	- 6.1	+ 6.0	+ 8.2	+ 3.3	+13.3	+11.0
Presque Isle	-21.1	-19.5	-22.8	-46.2	-44.3	-48.4	-30.7	-30.2	-29.2	-12.6
Roscommon	- 4.7	- .7	- 8.7	-42.2	-49.7	-33.5	-31.2	-25.9	-36.4	+ 8.6
Saginaw	- 7.3	-11.7	- 2.6	-16.4	-19.8	- 4.5	+ 6.8	+ 7.1	+ 6.5	+ .5
St. Clair	- 6.2	- 9.3	- 3.1	-28.7	-50.5	-23.5	-13.2	-16.1	-10.6	- .1
St. Joseph	- .8	- 2.5	+ .8	-16.8	-20.4	- 8.1	+ 4.0	+ .4	+ 7.6	+ 7.2

Table 33 (con't)

Sanilac	-17.3	-16.3	-18.4	-42.4	-45.8	-38.8	-29.2	-35.2	-22.5	- 8.7
Schoolcraft	-30.0	-31.0	-28.6	-59.0	-61.7	-56.1	-38.2	-41.7	-34.8	-14.9
Shiawassee	- 7.4	- 6.8	- 8.1	-18.7	-24.4	-12.8	- 6.2	- 7.0	- 5.5	- 3.1
Tuscola	- 9.8	-12.1	- 5.5	-32.4	-36.3	-39.2	-18.3	-20.0	-16.4	- 3.6
Van Buren	+ 3.2	+ 2.6	+ 3.7	-21.5	-28.1	-14.3	- 6.0	-14.8	+ 4.3	+10.2
Washtenaw	+62.3	+56.2	+68.5	+177.0	+177.9	+176.2	+33.5	+39.7	+27.1	+ 4.4
Wayne	-10.6	-15.2	- 5.7	-11.5	-22.2	- .4	+ .1	+ 3.7	+ 6.4	- 8.8
Wexford	-27.5	-30.3	-24.7	-45.5	-50.1	-40.8	-34.8	-35.2	-34.3	-15.6

Sources: U.S. Census of Population: 1960, Final Report, PC (1)- 24-B, General Population Characteristics Michigan, Table 27; U.S. Census of Population: 1950, Population Census Report P-B22, General Characteristics Michigan, Table 49.

(a) Taken from J.A. Beegle and J.F. Thaden, Population Changes in Michigan, 1950-60, (East Lansing: Agricultural Experiment Station, 1960), Table A, pp. 23-25.

Table 34

Population Projections of Michigan, by County, to 1970

County	Population 1960	PROJECTION A[1]	PROJECTION B[2]	PROJECTION C[3]	Percentage Range
Alcona	6,352	6,860	6,730	6,890	2
Alger	9,250	8,410	7,800	8,550	10
Allegan	57,729	69,900	68,360	70,200	3
Alpena	28,556	36,220	33,700	36,750	9
Antrim	10,373	10,080	9,160	10,040	10
Arenac	9,860	10,110	9,760	10,080	4
Baraga	7,151	6,600	4,680	6,360	41
Barry	31,738	38,040	37,970	38,470	1
Bay	107,042	29,390	128,880	129,520	0
Benzie	7,834	7,270	7,340	7,390	2
Berrien	149, 865	190,850	194,650	194,080	2
Branch	34,903	39,660	40,800	40,350	3
Calhoun	138,858	160,040	169,450	159,550	6
Cass	36,932	46,430	48,100	48,380	4
Charlevoix	13,421	13,300	12,910	13,370	4
Cheboygan	14,550	15,920	14,380	15,420	11
Chippewa	32,655	37,100	34,850	36,510	6
Clare	11,647	13,270	13,120	13,230	1
Clinton	37,969	46,130	45,700	46,210	1
Crawford	4,971	5,990	5,720	5,960	5
Delta	34,298	36,770	32,230	35,740	14
Dickinson	23,917	23,850	17,990	23,030	33
Eaton	49,684	61,260	60,560	61,660	2
Emmet	15,904	15,150	14,960	15,300	2
Genesee	374,313	501,260	481,940	516,930	7
Gladwin	10,769	12,330	11,310	12,270	9
Gogebic	24,370	22,730	16,020	21,960	42
Grand Traverse	33,490	39,200	40,440	39,220	3
Gratiot	37,012	42,100	38,680	40,970	9
Hillsdale	34,742	37,990	37,320	37,830	2
Houghton	35,654	33,520	21,680	31,950	55
Huron	34,006	34,990	33,010	34,890	6
Ingham	211,296	258,440	264,680	258,200	3
Ionia	43,132	49,230	47,010	48,740	5
Iosco	16,505	22,890	22,630	24,970	10
Iron	17,184	17,480	13,320	16,690	31
Isabella	35,348	43,040	40,530	43,120	6
Jackson	131,994	160,280	158,500	161,430	2
Kalamazoo	169,712	221,370	219,480	227,240	4
Kalkaska	4,382	4,430	3,370	4,180	31
Kent	363,187	453,080	444,840	457,620	3

[1]assumes that natural increase and migration patterns that prevailed in each county since 1940 will continue.

[2]is based on the ration method assuming that the total population will be 9.6 million and the population of each county would be the same percentage as the ratio from 1940 to 1960.

[3]is based on the assumption that the population of each county will continue to grow at the same rate as it did during the 1950-1960 decade.

Table 34 (con't)

County	Population 1960	PROJECTION A	B	C	Percentage Range
Keweenaw	2,417	2,120	810	2,000	162
Lake	5,338	5,400	5,400	5,420	1
Lapeer	41,926	48,970	48,050	49,100	2
Leelanau	9,321	10,140	9,490	10,050	7
Lenawee	77,789	93,040	94,490	93,660	2
Livingston	38,233	51,350	51,530	54,710	7
Luce	7,827	7,530	7,660	7,520	2
Mackinac	10,853	12,770	11,390	12,690	12
Macomb	405,804	688,320	649,310	890,330	29
Manistee	19,042	19,820	18,320	19,580	8
Marquette	56,154	65,990	60,200	66,150	10
Mason	21,929	23,610	22,810	23,490	4
Mecosta	21,051	23,420	23,020	23,370	2
Menominee	24,685	24,010	22,810	24,090	6
Midland	51,450	71,580	70,140	74,240	6
Missaukee	6,784	6,120	5,200	6,170	19
Monroe	101,120	130,810	132,910	135,100	3
Montcalm	35,795	41,230	40,070	41,310	3
Montmorency	4,424	4,770	4,670	4,740	2
Muskegon	149,943	185,020	190,210	185,030	3
Newaygo	24,160	27,230	27,000	27,060	1
Oakland	690,259	1,034,040	1,040,320	1,203,120	16
Oceana	16,547	17,100	17,040	16,990	1
Ogemaw	9,680	11,280	9,880	10,030	14
Ontonagon	10,584	11,220	9,170	10,890	22
Osceola	13,595	13,390	12,980	13,390	3
Oscoda	3,447	3,770	4,040	3,790	7
Otsego	7,545	8,910	8,580	8,840	4
Ottawa	98,719	128,180	127,290	132,180	4
Presque Isle	13,117	15,010	13,020	14,340	15
Roscommon	7,200	8,490	9,920	8,760	17
Saginaw	190,752	236,240	232,620	237,100	2
St. Clair	107,201	125,780	128,170	125,430	2
St. Joseph	42,332	50,400	49,200	51,090	4
Sanilac	32,314	34,060	32,200	33,870	6
Schoolcraft	8,953	8,720	7,820	8,760	12
Shiawassee	53,446	62,360	61,040	62,160	2
Tuscola	43,305	49,420	47,360	49,020	4
Van Buren	48,395	58,400	57,370	59,770	4
Washtenaw	172,440	217,900	231,850	220,900	6
Wayne	2,666,297	3,014,750	3,072,360	2,919,950	5
Wexford	18,466	18,310	17,660	18,300	4
MICHIGAN	7,823,194	9,654,000	9,600,000	9,975,740	

Source: J.F. Thaden, Population of Michigan Counties, Projections to 1970, Technical Bulletin B-24, Continuing Education Service, Michigan State University, March 1962.

The large numbers of youths seeking employment outside their home towns cannot be dismissed as an insignificant variable in curricular planning. But this fact does not necessarily mean that local educators can neglect the needs of that minority which enters the local labor market. Occupational trends and patterns for some of the smaller rural counties suggest that the patterns for the state, region, and nation are much less typical for them than for the metropolitan centers; for example, contrast Detroit with Allegan county. (See Tables 1 and 2, Appendix A).

In most cases, the changes which specific labor markets undergo over a period of time offer some measures of the types of employment which are going to be forthcoming within these markets. Peculiar local conditions in industrial composition and larger external economic forces help to explain emergent employment patterns. The impact, however, of relatively limited economic phenomena on small labor markets suggests that the study of trends in such markets often provides a rough guide for vocational curriculum planning. A new industrial plant in a small community radically affects the proportional distributions of occupations, as does the closing of an old plant. This is certainly not true of a large metropolitan labor market.

However, let us not mistakenly depreciate the significance of broad economic and industrial trends for even local vocational curriculum planning. As we shall see, a knowledge of such trends is imperative for planning, whether in rural or highly urbanized regions. Where particular local conditions may influence trends significantly, the local administrator is in the best position to know about these and modify his projections of vocational needs. To what extent, however, will short-term trends continue to depart from long-term trends in the broader community?

Study of both state-wide and local trends should sensitize local school administrators, business and professional people to the occupational needs of their youth. Local occupational patterns may also provide a guide or offer a standard of comparison. Certainly most school administrators in Michigan are faced with some, if not all, of the following questions: What is the continuing place of vocational agriculture in the local community? To what extent does business education or distributive education prepare students for local labor markets? For urban metropolitan labor markets? To what extent is highly specialized trade and industrial training practical or adequate for the needs of youths who remain in the local labor market or go elsewhere? What can be done to limit the number of dropouts or to help those who do leave school to find employment? And last but not least, what is the place of home economics in the curriculum? Are home economics courses geared to the kind of world in which women are increasingly entering the labor force? Has home economics met the needs of the emergent patterns of female employment?

In our analysis we have treated 77 counties and two Standard Metropolitan Statistical Areas (Detroit and Lansing)* as local labor markets. We have traced the patterns of change in their occupational structures by showing the changing proportional distributions of the major occupational groups for 1940, 1950, and 1960, as presented in Appendix A. We have also included in Appendix A the percentage changes between 1950 and 1960 for each of these major occupational groups (Table 2), so that one may trace the influence of particular occupational changes on the changing patterns of occupational distribution found in Table 1. The appendices are included to provide local administrators with the raw materials necessary to make future curricular decisions in vocational education. The analysis which each administrator makes for himself, should, we hope, provide him with greater insights into the needs of his community.

Local school administrators would be the first to recognize that, while they are knowledgeable about their own community and events which transpire there, they often overlook significant events affecting them because they cannot place them in a broad enough perspective. For example, in our analysis we find that, contrary to the patterns for the entire state, some local labor markets show substantial increases in the employment of blue-collar workers over the past decade. How should local administrators respond to these data? Does this mean that youths from local schools are going to find plenty of opportunities in the blue-collar occupations? The interpretations of such data, as being short-run or long-run, demand a broader frame of reference than the local community and its labor market can offer. As we shall see, the answer to the above question is emphatically, no!

While each community may have its own unique patterns, an exploration of all of the local labor markets (counties) suggests over-all patterns which have already been evidenced in the state-wide trends. For many communities, the size of the labor force has remained constant or has declined. In some cases there has been a marked increase in unemployment, in others not. Such statistics suggest an inability of the local community to absorb new entrants into the labor force. In other cases there have been marked increases in the size of the labor force, suggesting gains by some labor markets at the expense of others.

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*Detroit S.M.S.A. consists of Wayne, Oakland, and Macomb counties; Lansing S.M.S.A. consists of Ingham, Eaton, and Clinton counties.

If one explores each of the occupational groups separately, it is found that with the exception of one or two counties, the professional and technical occupations have grown as a proportion of the labor force. The growth, however, has been relatively small for the rural counties of Michigan and has often reflected merely the decline in agricultural employment. The more densely populated counties show larger growths in this occupational group, consistent with state-wide and national patterns of occupational and industrial change.

The general availability of white-collar jobs, technical, clerical and sales, is also limited by the smallness of the labor force in most local labor markets. This is also the case for the various service occupations. In addition, one has to weigh properly the size of unemployment in a community to evaluate job opportunities for any of the occupational groups. For example, employment in the professional, technical and kindred occupations in Alger County rose by 27.9 per cent between 1950 and 1960. (See Appendix A, Table 2). But the size of the labor forces is very small and unemployment continues to be very high, above 15 per cent. Professional, technical, and kindred persons in the employed labor force consisted merely of 257 persons.*

If one examines column (b), Appendix A, Table 2, it would appear that professional, technical, and kindred workers' employment is increasing enormously. However, placing these increases in proper perspective, they represent comparative declines among other occupational groups; examine columns (e) and (j), for example, the farm occupations, or (g) and (k) the semi-skilled and unskilled, blue-collar occupations.

The declining significance of agricultural employment is found in the small proportion of employed farmers, farm managers, and farm laborers. In some cases the declines in employment were not very great between 1940 and 1950, but were precipitate between 1950 and 1960; for example, in Alcona, Alger, Alpena, Arenac, or Benzie counties, where agricultural employment constituted a major proportion of available employment. In other counties such as Berrien or Calhoun, the declines, although sharp, have been more gradual over the two decades.

In many cases, the apparent increase in importance of operatives and other semi-skilled and unskilled blue-collar workers merely indicates the decline in importance of farming, as for example in Berrien or Branch counties. In many other cases, however, those counties in which farming has declined show almost a complete balance between those who left farming and those who went into other manual occupations, as for example in Allegan or Tuscola counties.

The relative and absolute increases in blue-collar employment are not the panacea they may appear to be. For although this occupational pattern appears to go counter to state-wide and national trends, it is undoubtedly a transitory phenomenon. The declines in the employment of operatives and kindred workers in the larger urban centers are apparent in column (g) in Table 2. The patterns of increase in most of the less populous counties belie the pervasive trend in declining employment opportunities for semi-skilled and unskilled blue-collar workers which are accurately reflected by trends in the larger urban centers.

As we have indicated above, the potential opportunities for former agricultural workers, with their relatively low levels of education, to get work other than in farming rests in the lesser skilled manual and service occupations. If there is a continuing movement from agriculture, blue-collar jobs will offer little opportunity to youths competing against former agricultural workers. In the larger urban areas, the declining opportunities in the blue-collar and lower service occupations reflect the competition for such jobs among the relatively unskilled, untrained, and poorly educated.

Each administrator responsible for leadership and direction in vocational training must follow the needs of persons in his own community. It is clear that these needs will continue to be expressed in local labor markets and in broader state-wide and national patterns. Persistent employment patterns and rates of unemployment in the various occupational groups offer clues to local administrators. The rates of retirement from the labor force of persons now employed are also significant to the planning of possible occupational opportunities for youth.

The data we have presented on employment and on migration for the state and for each county offer the fundamentals upon which responsible exploration and planning for vocational needs must take place. Local administrators can receive help from the Michigan State Employment Security offices and from the major state universities in interpreting the data and the probability of particular types of emergent occupational trends. Some of the implications of the patterns in employment and migration presented in this report are treated in our final section.

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*If our references are mainly to a few counties, this is because they are at the top of the alphabetical list. Our analysis, intended to provide a model, does not go over each county in detail and makes no pretense of being complete.

Vocational Curricula

Our data dealing with the emergent vocational needs of Michigan and its local communities will have meaning only when they are reflected in vocational offerings in the various educational institutions--high school, community, or senior college. Since we have set for ourselves in this study the task of evaluating vocational education at the secondary school level, our data are confined to course offerings in grades 9-12, in all of Michigan's public schools.* This part of our analysis answers such questions as: What types of courses are being offered to the high school youths of Michigan? Are these offerings consistent with the emergent vocational needs of youth? Are the peculiar needs of each of the local communities adequately recognized in their curricular offerings? How does one go about evaluating vocational education curricula? What is the validity of different approaches to evaluation?

Since we are evaluating vocational education in the public secondary schools, we have made no analysis of post-high school training, or training offered in private secondary schools or training institutes. We recognize the breadth and inclusiveness which evaluation of any educational curricula must represent. We also recognize the peculiar problems which vocational curricula present to the evaluator. For example, we know that facilities vary widely from one school district to the next. Courses bearing the same title but taught in different schools may be unrecognizable as the same course. Perhaps even greater variations are found in the experience and training of teachers of vocational courses.

Limitations must be recognized; for this study we have assumed a constancy of facilities and that titles are actually descriptive of courses. We realize the inadequacies of such assumptions, but the techniques for gathering our data, imposed by limited funds and limited time, made it possible to bring together only what individual school districts described as their offerings and what the local school districts reported on the qualifications and training of their teachers.**

To parallel our discussion of occupational and industrial trends in local labor markets and to evaluate increasing arguments for area-wide educational programs, the curricular data for individual counties have been brought together and analyzed. In many cases, it will be found that even at a county-wide level, taking all courses offered in the county together, the vocational education needs are not being met to prepare youths for either the local labor market or for work in other areas.

While the curricular offerings in vocational education for most K-12 school districts in the state have been brought together, it would be an impossible and perhaps fruitless task to discuss each school district separately. Administrators in each of these districts know what they have been offering, and should have an idea of the changing needs of local and state-wide labor markets.

We have felt it important to present an overview of what is being offered in vocational education, and to give individual school districts some idea of how their own patterns follow those of the state. In many ways this parallels our discussion of state-wide labor market trends. These microscopic views of state-wide education should also provide guides for those responsible for vocational education at the state level, since it allows them to relate over-all education patterns to over-all occupational trends.

Of the the total number of courses offered in vocational education in grades 9-12 for the entire state, the largest number are found in business education: 58.6 per cent of all student-credit hours taught and 54.1 per cent of all classes offered. (See Table 35). Trade and industry provides 39.9 per cent of the classes and 36.6 per cent of student-credit hours, while vocational agriculture only provides 6.0 per cent of the classes and 4.8 per cent of the student-credit hours.

How does one interpret these figures? Interpretation is difficult. In terms of the felt vocational needs of the state, the greatest amount of vocational training is found in the business areas. When one considers that this includes office and distributive education, offering vocational training for both males and females, the relative distribution of curricular offerings does not seem out of line with contemporary labor market needs. However, if one explores the distribution of state and Federal funds provided to the local communities for vocational education, the actual offerings are not in line with the distribution of these funds: $693,753 to trade and industry, $521,791 to agriculture, $484,814 to home economics, and $249,662 to business education.***

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*With the exception of a few schools which did not provide complete enough data. See Table 1, Appendix C.

**See Appendix C for the discussion of methodology and instruments used.

***These are figures for 1961. See Report by R. Wenrich, "A Study to Determine More Effective Ways of Using State and Federal Vocational Education Funds."

Table 35

Percentage Distribution of Vocational Education Classes and Student Hours According to Curriculum for Michigan, K-12 School Districts, Grades 9-12*

Curriculum	Classes (%)	Student Hours (%)
Total	100.0	100.0
Vocational Agriculture	6.0	4.8
Business	54.1	58.6
Trade and Industry	39.9	36.6

When one considers that a large proportion of students take college preparatory work which theoretically prepares them for the higher white-collar jobs, the comparative offerings in vocational education do not seem out of balance with the needs of the labor market. A study of the offerings in the various curricular fields county by county, however, reveals that while the over-all distribution for the state may appear adequate for the needs of youth, there is a concentration of particular types of vocational offerings in some counties to the neglect of other offerings. In addition, the actual lack of training offered in many school districts or counties makes for an imbalance in the training for both those who will remain in the local community and those who leave.

Which counties present adequate vocational training or a rational relationship between curricular offerings and labor market needs is difficult to say. We might start with the first two counties on the alphabetical list, Alcona and Alger, and examine some of these relationships. In 1960, Alcona had a proportion of professional, technical, and kindred workers representing 6.1 per cent of the employed labor force; Alger had a 9.6 per cent proportion of this group. Agricultural occupations represented 14.8 per cent of Alcona's employed labor force, and 7.3 per cent of Alger's. Clerical, sales and kindred workers were equally distributed, 14.0 per cent and 14.8 per cent respectively. Operatives and kindred workers represented a much larger proportion in Alger county than in Alcona county, 23.2 per cent and 14.8 per cent respectively.

Alger county had approximately twice the number of students as Alcona, yet the student-hour-offerings were larger only in business curricula. (See Table 36). Alcona not only had more students who went on to college--44 per cent as compared to 24 per cent--but also offered more vocational education, 21 per cent of all high school courses, compared to Alger's 13 per cent.**

Unemployment rates have been somewhat higher in Alcona, although the declines in the higher white-collar occupations and the lower rate of increase of lower white-collar occupations have been more typical of Alger than Alcona. The migration patterns of youth are similar for both counties although over-all migration out of Alcona is very low.

Is vocational training adequate in either of these counties? Are the needs of youth being met? Is one county preparing its youth better than the other? Is Alcona in a better economic condition to offer what appears to be greater educational opportunities to her youth?

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*Based on figures for the entire state including approximations for incomplete data, but excluding all courses which are 7th or 8th grade, or combinations including these grades. (See Appendix B).

**We assume that the total hours taken in a week by any one student is 30, and the total student-hours for the grades 9-12 is the total number of students multiplied by 30.

Table 36

Vocational Curricula in Michigan K-12 School Districts for Grades 9-12, and Total Students Grades 9-12, by County

County	Curricula Measured in Student-hours per week*			Total Students in Grades 9-12[f]
	Agriculture	Business	Trade and Industry	
Alcona	159.25	1046.75	850.00	324
Alger	97.50	1650.50	851.25	666
Allegan	1568.75	6698.75	4283.50	2954
Alpena	118.75	3367.75	2515.25	1260
Antrim	125.00	1568.50	718.50	727
Arenac	215.50	1738.50	999.50	742
Baraga	187.50	1477.25	724.00	515
Barry	1418.50	3803.50	2861.25	1809
Bay	836.00	1249.25	10706.50	4695
Benzie	382.50	1560.25	724.00	527
Berrien	1389.50	10518.00**	6776.00**	6303
Branch	990.50	4923.75	578.25	1809
Calhoun	746.25	8859.75**	5350.00**	5995
Cass	658.75	4616.00	1938.75	1748
Charlevoix	174.25	2123.50	1557.00	851
Cheboygan	247.00	1508.50	1334.75	643
Chippewa	569.25**	4348.75**	3259.00**	1444
Clare	551.00	2346.50	931.00	883
Clinton	1193.50	6188.25	3161.75	1867
Crawford	a	99.75	76.00	291
Delta	150.50	649.00	948.00	1756

[a] no courses at 9-12 level indicated

[b] not enough information

[c] no K-12 school district

[d] one course indicated; no information on student-hours

* The number of hours the course was taught during the week was multiplied by the number of students in the class. Some inaccuracies arose from the fact that, in coding the hours, intervals were used and the final result was derived by taking the mean of the interval and multiplying it by the number of students. Another inaccuracy resulted from the fact that some school districts did not provide complete data on hours, students, or both. In some cases estimates were made from the available figures from the same district or from the total county figures. In other cases, the data was so incomplete that it was felt that it would be better to omit them completely. The school districts for which data is not included are found in Appendix C , Table 1.

**Some school districts were not included because of limited data.

Fourth Friday Membership, not including special students and others, September 30, 1960. **Schools with inadequate data (**) not included. See Appendix C , Table 1.**

Table 36 (con't)

County	Curricula Measured in Student-hours per week			Total Students in Grades 9-12
	Agriculture	Business	Trade and Industry	
Dickinson	370.50	413.50	348.00	1414
Eaton	986.75**	5327.00**	3166.75**	2426
Emmet	253.75	479.75	248.75	964
Genesee	1746.75	43876.75	27,218.50	18466
Gladwin	99.75	280.25	104.50	735
Gogebic	60.00	629.00	546.25	1505
Grand Travers	b	b	b	1772
Gratiot	2264.75	9033.00	4428.50	2627
Hillsdale	1782.00**	4431.50**	2256.00**	1474
Houghton	a	3964.50**	2481.25**	1836
Huron	2763.50	5967.25	3475.25	2363
Ingham	1744.75	28712.50**	15303.75**	9858
Ionia	1292.00	5426.50	3172.25	2309
Iosco	760.25	4468.50	1723.50	1300
Iron	a	3190.25	1833.25	1122
Isabella	872.00	3949.50	3115.25	1642
Jackson	1613.75	8602.50	8300.00	6300
Kalamazoo	647.75	8211.75	13412.75	7441
Kalkaska	------	489.25	532.25	303
Kent	1783.00**	32,423.25**	19940.50**	14244
Keweenaw	c	c	c	---
Lake	a	501.25	432.25	268
Lapeer	1381.25	5731.25	3391.50	2050
Leelanau	55.25	236.00	66.00	389
Lenawee	2154.50	8418.25**	4313.75**	3308
Livingston	560.50	3511.50	1636.00	2074
Luce	a	2056.25	1357.50	516
Mackinac	d	417.25**	457.50**	378
Macomb	716.50	45325.25**	29275.00**	17049
Manistee	120.25	1686.00**	1036.25**	496
Marquette	544.00	5305.50**	3934.50**	2163
Mason	923.75	4387.25	2107.00	1365
Mecosta	551.25**	3149.50**	1680.75**	1105
Menominee	426.00	4242.00**	3048.00**	1449
Midland	204.25	8807.75	6166.75	3169
Missaukee	308.75	1296.25	485.50	420
Monroe	1033.00	10134.75	7082.25	4921
Montcalm	2438.75	7659.75	3330.75	2489

Table 36 (con't)

County	Curricula Measured in Student-hours per week			Total Students in Grades 9-12[f]
	Agriculture	Business	Trade and Industry	
Montmorency	324.25	1334.75	249.75	326
Muskegon	655.75	17097.50**	12,414.00**	7266
Newaygo	1246.50	2292.00	1519.25	1598
Oakland	498.75	49822.75**	34027.25**	32994
Oceana	579.50	1976.50	891.50	859
Ogemaw	417.25	1143.50	722.00	607
Ontonagon	a	1830.50	1187.00	719
Osceola	992.00	3181.00	1691.75	1069
Oscoda	126.00	519.75	340.25	195
Otsego	272.25	1050.00	337.75	448
Ottawa	674.50**	9101.00**	6118.00**	3900
Presque Isle	311.25	1541.25	952.50	925
Roscommon	a	2101.00	335.50	505
Saginaw	1725.75	17044.00	13433.00	9451
St. Clair	759.75	6614.00**	5404.75**	4898
St. Joseph	449.25	7525.00	4647.75	2621
Sanilac	2367.75	5568.50	3619.00	2066
Schoolcraft	d	1491.25	573.00	541
Shiawassee	1741.75	7884.00	3830.00	3023
Tuscola	3269.75	8020.75	4185.50	2894
Van Buren	1901.50	7773.75	5353.50	3092
Washtenaw	1215.00	11196.75**	7584.75**	5457
Wayne	346.75	262,138.50**	157,157.00**	103547
Wexford	645.00	968.50**	557.00**	423

Let us compare two more populous counties with similar-sized student bodies and about the same relative distributions of occupational groups, Cass and Clinton counties. Clinton is part of the Lansing S.M.S.A. and many residents work in Lansing. Cass is in the southwestern part of the State bordering Indiana and undoubtedly many persons from Cass work in some of the Indiana industrial communities, such as South Bend.

Although the distributions of occupations are very similar, especially if one combines the agricultural occupations into one group, there are noticeable differences in the distributions and amounts of vocational education curricula. Cass offers approximately 46 per cent more vocational student-hours than does Clinton. Of the course offerings, Cass provides 9.1 per cent in agriculture, 64.0 per cent in business, and 26.9 per cent in trade and industry. Clinton offers 11.3 per cent in agriculture, 58.7 per cent in business, and 30.0 per cent in trade and industry. What accounts for the differences in total amounts and distributions of course offerings?

Let us compare three other counties which are quite similarly situated in the densely populated southern part of the lower peninsula, industrialized, and having some cultural and educational similarities: Ingham, Jackson, and Kalamazoo counties. We find major differences in the nature and quantity of vocational curricular offerings in these counties. Kalamazoo places strongest emphasis on trade and industry, Ingham on business, and Jackson treats these areas about equally. Kalamazoo provides the least training in agriculture.

When we examine the structures of the labor markets of these counties, we find differences in the distributions of both blue-collar and white-collar occupations. The blue-collar occupations represent 31.2 per cent of the labor force in Lansing, 38.6 per cent in Kalamazoo, and 41.6 per cent in Jackson. In the clerical, sales, and kindred occupations Ingham [illegible] 26.0 per cent, Kalamazoo 21.7 per cent, and Jackson, 21.3 per cent. If one used purely rational criteria, a superficial conclusion might be that Jackson should offer the greatest proportion of trade and industry courses in its vocational program, and the lowest number of business courses.

One might ask whether the differential offerings between Ingham and Kalamazoo rationally reflect the needs of their labor markets. In terms of trends, Ingham does show a decline over the past decade in the number of operative jobs, while Kalamazoo and Jackson show small increases. However, if one studies the trends over the past two decades found in Appendix A, Tables 1 & 2, similarities are quite evident for all three counties. If vocational education planning is aware of both contemporary distributions and trends in available employment, one should expect that all three counties would show greater similarities in vocational offerings than they now do.

Which of these counties offers the most rational vocational education programs? Again it is difficult to say because of the myriad unexplored variables. We would assume, however, that the youths in these communities, for the most part, are going to remain and seek employment in them. All of the migration data we have presented earlier point in this direction, since each county has had a large increase in the youthful segments of the population. Judging by the proportions of youths going to college in these counties--44 per cent in Ingham, 41 per cent in Jackson, and 41 per cent in Kalamazoo--the social characteristics of these communities do not differ greatly.*

Tradition, rational appraisal of needs, and values of educational, civic, and business leaders profoundly affect the course of education. How one school district or county appraises its needs is a function of many variables. Whether this appraisal will lead to the productive employment of its youth depends on the abilities of those charting the direction of education, and vocational education in particular, to read the economic and occupational signs both on the broader scene and in the local community.

A crucial variable in the evaluation of vocational curricula which we have not discussed is that of dropouts. All school districts are faced with some students who do not complete high school. What training should they get before they leave? Can they be motivated to stay? Are the courses they take before they drop out valuable for employment?

Since the largest percentage of dropouts come from grades 9-10, the vocational offerings which they receive are very limited. It would seem that much of what is offered to these students is wasted. If, for example, we assume that of the one-third who do not finish high school, a large proportion are in the vocational classes in grades 9 and 10, then our evaluation of vocational offerings must be treated in a somewhat different light.

Using very conservative figures, then, a minimum of fifty per cent of the vocational education offerings in grades 9-10 are probably of little value for actual vocational activity, because of the relatively elementary level of such instruction, which postulates a vocational program built on these courses. This means that for the entire state, there are thousands of student hours, and hundreds of classes which are not serving the purposes they have been established to serve.

*See D. J. Porter, "Number and Percentage of Michigan High School Graduates Enrolled in College for Years 1950, 1955, 1960." Research Mono. # 1, Mich. State Dept. of Public Inst. 1963, pp. 9-5.

Education and Experience of Vocational Education Teachers

The evaluation of vocational education courses should certainly treat of the education and experience of teachers as a crucial variable. It is unfortunate that our data do not provide adequate statistics on the education and experience of all teachers in vocational education in Michigan. The number of teachers for whom we do not have information offer 52 per cent of all student hours in business, 49 per cent of all student-hours in home economics, 47 per cent of all student hours in trade and industry, and 74.9 per cent of all student-hours in vocational agriculture. We might make an assumption that the distributions of these teachers for whom we do not have information are comparable to the distributions for those for whom we have the necessary data, since the distributions of data are about equally complete over the State, rural areas as well as urban, small school districts as well as large city systems.

In general, the data on the educational backgrounds of teachers make it difficult to conclude that any one particular group is better prepared educationally than are the others. (See Table 37). The largest number of advanced degrees are found among the teachers in business education. In contrast, the largest number of nondegree teachers are found among those in trade and industry, a fact which recognizes the difficulties of recruiting practices in trade and industry, which places primary emphasis upon trade experience.

Table 37

Percentage of Vocational Education Classes Taught by Teachers With College Majors or Minors in the Fields In Which They Are Teaching

Curriculum	College Training			
	Advanced Degree	Bachelors Degree	No Degree	Total
Vocational Agriculture	100.0	98.8	100.0	99.1
Home Economics	92.2	94.2	92.7	93.6
Business	92.4	94.2	86.7	93.1
Trade and Industry	91.9	94.3	63.9	92.0

When we examine the experience of teachers in the respective fields, we find that a large number have fewer than five years of teaching experience. (See Table 38). The curriculum with the largest percentage of teachers with less than five years of teaching experience is vocational agriculture. Smaller percentages are found for trade and industry, with home economics and business education showing equally the lowest percentages.

Table 38

Percentage of Vocational Education Classes Taught by Teachers With Less than Five Years Teaching Experience

Curriculum	Percentage With Less Than Five Years Experience
Vocational Agriculture	51.3
Home Economics	31.0
Business	30.5
Trade and Industry	39.3

We have been interested in judging the quality of teaching. Certainly one criterion is academic training in the fields being taught. An exploration of the academic backgrounds of the teachers shows that relatively few classes are taught by persons who have had neither a college major or minor in their fields. The lowest proportion of teachers without a major or minor in the field in which they are teaching is found among the vocational agriculture teachers. Less than 1.0 per cent of the

teachers in vocational agriculture did not take a major or minor in agriculture in college. The largest proportion is but 8 per cent, found for trade and industry. An assumption that the experience of the teachers in our sample represents an underestimate of the actual experience and training of all Michigan vocational education teachers does not seem valid when the reliability of the results are checked against the Michigan Department of Public Instruction records on reimbursed programs.

Some Conclusions Suggested by the Data

The problems confronting educators in the out-state areas of Michigan are directly related to the patterns of out-migration from the local communities, and the inability of local school districts to meet the continual challenges of a rapidly changing economy. The types of vocational training needed by youths who are graduated from high school before entering the labor market are difficult enough to envision; the problems for youths who drop out of school before graduation are even more difficult to envision.

In the larger urban areas, the problems facing educators include not only the types of vocational training which youths should be receiving in the light of current labor market trends, but the differential problems where the populations of the communities are much less homogeneous than those in rural counties. The youths who are going to enter the labor force in metropolitan areas may be divided into four significant groups, not including those who go directly to college from high school.

The largest number are those white youths with just a high school education. A rational and successful preparation of these youths for the world of work must rest upon a continuing appraisal of the needs of local industry. Those white youths who drop out of school are going to continue as one of the most difficult problem groups, since there is very little opportunity for their employment appearing on the horizon.

Perhaps the greatest problem of metropolitan area education is the occupational training and occupational placement of non-white youths. These youths not only constitute the largest relative proportions of those not completing high school, but also constitute the largest relative proportions of the unemployed, and especially the long-term unemployed. The data reveals that the types of employment which have been available to non-white persons in the population are becoming less important to the economy, making the problem of placement of these youths even more difficult.

The training of all youths, white and non-white, and their placement in the labor market, cannot be left to chance. The economic models which show labor markets to be vast self-adjusting mechanisms, ultimately maximizing returns if left alone, are just too unrealistic to take seriously. Vocational training of our youth is a serious matter which cannot be left to the vagaries of the economic scene, nor sloughed off completely onto educational institutions, making it solely the responsibility of school administrations.

It must be realized that the attractiveness of communities for business firms rests not only on economic phenomena, but also on the social characteristics of the community. Is it a good place in which to live? Does it have a wholesome, healthy social climate? Does it have good schools, hospitals, and recreational facilities? Does it have a social climate unridden by tension and latent conflict?

The costs of maintaining a community, whether there is full employment or great unemployment, whether the schools and industry adequately prepare youth for the world of work, or relegate them to the unproductive, socially dependent unemployed, are ultimately borne by the community. Industry pays a high share of community costs. From a purely economic view, industry should realize that, along with the schools, it has the responsibility for training youths for employment.

In the complex and rapidly changing world of new technologies and shifting occupations, it becomes unrealistic to expect schools to train persons for specific new emergent jobs in industry. In large communities, the trades and services will maintain enough stability so that youths may be trained to fill available jobs in these fields. This is also true of clerical occupations for women. But only a portion of youths can be trained for these jobs. What is to happen to the others?

It is becoming apparent that narrowly specialized training as vocational curricula no longer makes sense. A broad general training adaptable to a variety of specialized jobs must be worked out. This is true for technical as well as clerical fields. Industry must begin to take its share of the responsibilities for training and job placement. Over and over again, industry spokesmen have said that they want generally educated or trained persons for whom they can provide the kinds of training needed in their plants. It is about time that the relationships between industry and school were formalized. The planning of vocational curricula must be done cooperatively and the placement of youth must not be a haphazard affair.

There will be continuing needs for specialized occupations such as repair services, for which schools can directly train youths. School systems must relate themselves to the changing needs of the labor market, providing flexibility, upgrading of training, and modifications where needed. There is no reason to train only auto mechanics so that there no longer are TV or repairmen for electrical appliances. On the other hand, not all the youths in the community can become repairmen. Large city school systems, of course, can provide sufficient flexibility and funds to meet these challenges; the smaller rural communities obviously face greater problems.

The upgrading of employment in industry has been reflected in the increasing demands for technicians of all types. Such technical training is being given in the community colleges. A responsibility of the high schools is not to attempt to train in these areas, since this training is likely to be inadequate at the high school level, but to prepare youths to go on to a community college to become technicians. Boards of education must resist the patterns through which community colleges, obviously seeking increased prestige or status, become college preparatory. If this becomes the function of the community college it cannot serve the functions of preparing youths for the technical occupations.

High school education, which has always been a multi-track phenomenon, must lay out more tracks. Youths can be trained for some vocations in high school. Others can be prepared for specialized or more sophisticated technical training to be taken in the community colleges. Others, who have been the dropouts must be put on still another track, providing them, with an education which is interesting, and perhaps remunerative, and which offers some hope for future employment.

In large cities such as Detroit, Grand Rapids, Flint, or Lansing, the time has come for industry to join other progressive forces in the community in seeing that larger proportions of non-white youths remain in high school until graduation and are then placed in industry. Cooperative programs which provide some income to such youths would be ideal. This does not mean only their placement in industry, but also opportunities to get employment in the higher service occupations. It means also the training of such youths in the distributive occupations and their placement in cooperative programs.

Non-white females require the same type of considered preferential treatment; efforts must be made to place them in the white-collar fields. The types of training to be given to non-white youths should be similar to the types of training for others, congruent with the changing needs of the labor market. We cannot overly emphasize the need for more numerous cooperative programs as one solution to the dropout problems for all youths, white or non-white, male and female.

The problems for out-state areas are of a different type. Such school systems are also faced with dropouts and to some extent with the employment of non-whites; but for the most part, these systems have as their main problem a traditional orientation to vocational education, based on an agricultural economy. The rationality of a community's maintaining the large number of agricultural vocational courses oriented toward farming has already come into question. It must be faced: farming employment continues to decline at a rapid rate. However, one must recognize that for those who do remain in farming, technologies are also moving ahead rapidly, and persons in agriculture need even greater training. In addition, agricultural service occupations are also very important and require vocational training.

How do the smaller school districts train their youths for the available jobs at home, and for jobs in other markets? The rationalization of vocational education demands a broad economic and population base. School systems which may not have to consolidate for academic education because they have adequate populations and tax bases, must consolidate for vocational education, because they do not have the facilities, and the costs of programs for limited numbers of students are prohibitive. The paucity of vocational curricular offerings in county after county shows the limitations imposed not only on local school districts, but on counties, and broader economic areas within the state. Actually, in such cases, little is done to train youths adequately for the world of work.

In each of the traditional areas of vocational education, tremendous changes have been taking place, making it possible to realize good vocational training for youths if the communities could provide the facilities. The only way this can take place is through area vocational programs; the broader the population base, the better.

Through area-wide vocational programs, vocational agriculture could be continued and expanded into trade and service areas of agriculture, with better offerings. Only students interested in these fields would get training in them, rather than being trained because there is nothing else available. The same is true for training in the operation of complex office or shop equipment. No local community can provide the necessary training for youths to achieve proficiency in the latest office techniques, or provide the latest equipment found in industry.

We have not discussed the role of counseling in vocational education. School systems have to provide adequate vocational data through continual follow-up study of both graduates and dropouts, and keep adequate records on the information so gathered. There also should be centralized facilities for the coordination of county and regional data and the continual meeting of counselors from different school systems to discuss the vocational needs of local youths.

We have not presumed to tell any local school district or any group of school districts in a county whether their vocational training is better or poorer than that of other school districts. What we have attempted in this study is to provide a model for analysis and to bring into conscious awareness some of the crucial variables which affect the future employment of youth in Michigan's schools. Administrators familiar with their own local problems and the broader problems of the state may find materials in the data which go far beyond the analysis we have attempted. We can hope for no happier outcome.

CHAPTER IV

ADMINISTRATION, ORGANIZATION, AND SUPERVISION OF VOCATIONAL EDUCATION

The third task force established by the Executive Committee of the Michigan Vocational Education Evaluation Project investigated certain aspects of administration, organization, and supervision of vocational education in Michigan. This segment of the total study was under the sponsorship of the University of Michigan with Professor Ralph Wenrich serving as Project Director. Two major aspects of vocational education were studied: financing of vocational education programs in Michigan, and organization for the administration of vocational education.

Part I

Financing of Vocational Education Programs in Michigan

Financing adequate services in vocational education, just as in other phases of education, has been a persistent problem. Expanding enrollments, greater student retention in schools, ever-present unmet needs, taxpayer and legislative resistance, and increased cost of operation have caused reexamination of the use of public school funds. It was to be expected, therefore, that a study focusing on the evaluation of vocational education would give top priority to the question of finance.

Sufficient evidence was available to make a case for additional appropriations for the support of more and better vocational education programs on both the federal and state level. Periodic studies had been made on the national level by both the American Vocational Association and the U. S. Office of Education, requesting the states to indicate additional funds needed. Projections of anticipated enrollments on the high school level and the attendant need for growth in vocational education were in existence. Labor market analyses and future projections provided general information regarding the expansion of employment opportunities. Data had been collected showing the communities in Michigan that offer no or minimal programs of vocational education. Although additional appropriations can be anticipated, it is questionable whether adequate funds will ever be available to meet the ever-increasing demand. A second alternative was to examine the use of existing funds to determine whether or not present allocations were being utilized most effectively.

With limited funds available to the Michigan Vocational Education Evaluation Project, it was decided to concentrate on the financial support used for vocational education in Michigan. If certain improvements in financial policies and practices could be suggested, additional appropriations could be utilized more advantageously. The Executive Committee of the Project, the University of Michigan Advisory Committee and state vocational education consultants, through their expressions, concurred that a review of reimbursement practices should be given top consideration. Two studies emerged. The first concentrated on an investigation of the use of state and federal funds to reimburse vocational education programs in local communities; the second focused on the reimbursement of teacher education services conducted by institutions of higher education.

This section of the report will deal with the major findings resulting from the study entitled:

> A STUDY TO DETERMINE MORE EFFECTIVE WAYS OF USING STATE AND FEDERAL VOCATIONAL EDUCATION FUNDS IN THE FURTHER DEVELOPMENT OF PROGRAMS REIMBURSED BY LOCAL DISTRICTS.*

The central question of this study was: are the present uses of state and federal funds resulting in the most effective promotion and development of vocational education in the public schools in Michigan?

Review of Reimbursement Policies and Practices in Michigan

In conformity with the terms of the federal vocational acts, each state is required to prepare a

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*Abstracted from a study conducted by Ralph Wenrich, A Study to Determine More Effective Ways of Using State and Federal Vocational Education Funds in the Further Development of Programs Reimbursed by Local Districts, a part of the Michigan Vocational Education Evaluation Project (Ann Arbor, Michigan: The University of Michigan, Office of Research Administration, July 1962).

State Plan stipulating those conditions under which federal funds will be used. Besides the conditions that conform to statute requirements, the states have freedom to enlarge their programs of service to meet the unique characteristics of their state.

The types of services for which state and federal funds are used in Michigan include state administrative and advisory services, teacher education services, and services provided through local school districts including all-day, part-time and evening instruction, local supervisory and administrative services and travel. These services have been provided in the fields of agriculture, homemaking, business, and trade and industrial education.

Despite the limitations of the federal statutes for the utilization of funds, considerable flexibility and latitude exist for the State Board of Control for Vocational Education to exercise judgment as to the degree of emphasis that should be placed on various services. If the State Board of Control deemed it advisable that additional emphasis should be placed on one field of vocational education, it could make this determination and allocate funds accordingly. Similarly, if the intent was to encourage more local leadership, funds could be diverted from another service and allocated for this purpose.

A review of the pattern of reimbursement reveals that it has remained somewhat consistent since the inception of the Smith-Hughes Act. This does not imply that the rate of reimbursement within this pattern has been constant. Since the Smith-Hughes Act and subsequent legislation state that funds should be used for the promotion and further development of vocational education, there appears to be some evidence to show that the policies and practices governing the conduct of reimbursement may have been conducive to supporting and maintaining some programs of vocational education.

Although the pattern of reimbursement has remained rather constant, the rate of reimbursement has been on the decline, particularly in the vocational education programs carried on in Michigan high schools. Despite this fact, over the years there has been an increase in the number of programs and an increase in enrollments. In recent years, however, there has been a decline in the field of agriculture and trade and industrial education.

Of the $3,182,418.09 state and federal funds available for vocational education in 1959-60, a total of $1,950,021.76 was provided local school districts for all types of services including all day programs, instruction for out-of-school youth and adults, supervisory and administrative costs and travel. Approximately 65 percent of this figure was expended for reimbursement of all-day programs in agriculture, homemaking, trade and industrial education, and cooperative programs.

Since such a large proportion of state and federal vocational education funds was used to reimburse the salaries of teachers in Michigan high schools, it was decided that a study should be made to determine the probable effect if reimbursement of high school programs were discontinued and these funds used to provide other services either on the secondary level or for out-of-school youth and adults programs.

Procedure for the Survey

A questionnaire was developed with the help of the University of Michigan Survey Research Center to obtain the opinions of local administrators as to the probable effect of the withdrawal of reimbursement on the salaries of high school teachers. The questionnaire elicited opinions of local administrators in four areas:

1. Opinions of School Administrators Regarding Probable Effect of Modifications in the Rate of Reimbursement on High School Programs.

2. Opinions of School Administrators Regarding the Use of State and Federal Funds in the Development of High School Versus Post-High School Services and Programs.

3. Opinions of School Administrators Regarding the Use of State and Federal Funds in the Development of State Schools, Area Schools, and/or Local Programs.

4. Opinions of School Administrators Regarding More Effective Use of State and Federal Funds.

The questionnaire was sent to all superintendents, principals, and directors of vocational education in Michigan school districts in which high school-reimbursed vocational education programs were operating during the year 1960-61. Of 861 questionnaires sent, 790 or 92 percent were returned. The distribution of responses according to enrollments of schools was as follows: 0-199, 9 per cent; 200-499, 42 per cent, 500-999, 24 per cent and 1,000 or more 18 per cent; Seven per cent of the respondents did not indicate the enrollment.

Opinions of School Administrators Regarding Probable Effect of Modifications in the Rate of Reimbursement on High School Programs

Although the primary purpose of this survey was to determine the probable effect on high school programs if reimbursement were gradually withdrawn, respondents were given the opportunity to indicate what the effect would be if the rate of reimbursement were doubled, if it were to remain the same as at present, and if it were to be gradually reduced so that at the end of three years no reimbursement were to be made. In the event that additional appropriations for vocational education were available, the opinions regarding doubling reimbursement would be of importance. The respondents were given the opportunity to choose from a list of possible responses in relation to each of the three situations (if reimbursement were increased, remain the same, and decreased). They were also asked to give their opinions in relation to those programs (agricultural, homemaking, trade and industrial and cooperative) which were then operating in their schools; that is, high school principals who were operating reimbursed vocational agricultural programs were invited to respond to the three possible conditions in relation to agricultural education.

Summary and Conclusions

The part of the study having to do with the probable effect of modifications in the rate of reimbursement can perhaps best be summarized in tables assimilating comparable data for the four fields.

Table 1 shows the programs which would be continued unaltered and those which would be improved in quality and/or number of youths served if the rate of reimbursement were increased. It shows the

Table 1

Comparison of the Probable Effect on Reimbursed Vocational Programs In the Four Fields if Reimbursement Rates Were Increased, Remain the Same, or Decreased (per cent)

	Agr.	Hmkg.	T & I	Coop.
If the rate of reimbursement were to be increased:				
Improvement in quality	38	31	12	16
Serve more youth	3	8	14	14
Both improvement in quality and number served	14	22	24	29
Continue unaltered	41	38	47	39
If the rate of reimbursement were to remain the same:				
Continue unaltered	73	78	80	84
If the rate of reimbursement were to be decreased (to no aid):				
Continue unaltered	19	45	46	35
Diminish in quality	12	14	4	8
Serve fewer youth	8	14	15	18
Diminish both in quality and number served	21	15	14	13
Eliminate entirely	36	7	16	20

percentage of programs which would be continued unaltered, if the rate of reimbursement were to remain the same, and it also gives the percentage of programs which would be continued unaltered and those which would diminish in quality and/or serve fewer youth, as well as those programs which would be eliminated entirely. This table suggests that if reimbursement were to be doubled, more qualitative improvement in agriculture and homemaking would take place, and more youth would be served in trade and industrial and cooperative training. There was very little difference among the four fields of vocational education in terms of what might be expected in continuing were the rate of reimbursement to remain the same, although the percentage of agricultural programs which would continue unaltered

was quite striking when considered in relation to reduced reimbursement; only 19 percent of the administrators felt that their agricultural programs would continue unaltered if reimbursement were eliminated; it was 46, 45, and 35 per cent in trade and industrial, homemaking, and cooperative training, respectively.

Another way of analyzing these data was to compare the percentage of programs operating in 1960-61 which would probably be continued with or without modifications. Table 2 shows the programs which would be continued if decreased (to no aid). This table suggests that modifications in the rate of reimbursement would have the least effect on homemaking and the greatest effect on agriculture. It also shows that 75 per cent or more of the programs in homemaking, trade and industrial, and cooperative training would be continued without state and federal aid.

Table 2

Percentage of Programs Operating in 1960-61 Which Would Be Continued With or Without Modifications

If the rate of reimbursement were to:	Agr.	Hmkg.	T & I	Coop.
Be increased (doubled)	96	99	97	98
Remain the same	95	97	98	97
Be decreased (to no aid)	61	89	79	75

A similar comparison is presented in Table 3 of the percentage of programs operating in 1960-61 which would be continued unaltered under the three sets of conditions, that is, with the rate of reimbursement increased, the same, or decreased. Here again, the pattern was somewhat similar to that in the preceding table.

Table 3

Percentage of Programs Operating in 1960-61 Which Would Be Continued Unaltered

If the rate of reimbursement were to:	Agr.	Hmkg.	T & I	Coop.
Be increased (doubled)	41	38	47	39
Remain the same	73	78	80	84
Be decreased (to no aid)	19	45	46	35

Table 4 shows the percentages of programs operating in 1960-61 which would be eliminated entirely under each of the three sets of conditions, that is, if the rate of reimbursement were increased, the same, or decreased.

Table 4

Percentage of Programs Operating in 1960-61 Which Would be Eliminated Entirely

If the rate of reimbursement were to:	Agr.	Hmkg.	T & I	Coop.
Be increased (doubled)	2	--	2	--
Remain the same	3	1	1	1
Be decreased (to no aid)	36	7	16	20

Vocational agriculture would suffer the greatest loss in terms of the number of programs likely to be eliminated if reimbursement were withdrawn. The fact that vocational agricultural programs are currently being reimbursed at a higher rate than other programs may be relevant; in 1960-61, the year this survey was made, the rate of reimbursement on agricultural programs was 38 per cent, while homemaking, trade and industrial, and cooperative programs were reimbursed at 20, 20, and 27 per cent, respectively. The effect of withdrawal or reimbursement would seem to be less in the case of homemaking than in any of the other three fields.

Opinions of School Administrators Regarding the Use of State and Federal Funds in the Development of High School Versus Post-High School Services and Programs

The primary purpose of the survey of local school administrators was to determine the probable effect on reimbursed high school vocational programs if modifications were made in the rate of reimbursement. One part of the questionnaire was designed to find at what level (high school or post-high school) local administrators felt the emphasis on vocational education should be focused. This section of the questionnaire was introduced by the following statement:

> "If, in the future, vocational funds were no longer used to support the present high school programs, these funds could be used to stimulate the further development of new programs and services."

Respondents were then asked to indicate where the funds could be best used; that is, should funds for vocational education be used to stimulate the further development of programs and services for (1) high school youth, or (2) out-of-school youth and adults. An attempt was made to force the respondents to make a choice between the two possibilities by asking them to check only one. They were given the opportunity to respond to this question in relation to each of the fields, agricultural, homemaking, industrial, and business education.

Summary and Conclusions

Table 5 shows the responses from the 790 local school administrators by fields and by positions held. The majority of local administrators felt that the emphasis should be placed on programs and services for high school youth. Among the several fields there was some variation regarding this matter. In relation to homemaking 72 per cent of the respondents favored using funds to stimulate programs for high school youth; in the field of business education, 67 per cent favored high school youth; and in relation to both agricultural and industrial education, 61 per cent. While superintendents and principals were in fairly close agreement with each other, directors of vocational education would give less emphasis to high school programs, and more to programs for out-of-school youth and adults. It should be noted that a significant percentage of the directors of vocational education checked both high school youth and out-of-school youth and adults, even though instructed to check only one.

The number of local school administrators who would use vocational funds to stimulate programs for out-of-school youth and adults is higher when viewed in relation to agricultural (26 per cent) and trade and industrial (24 per cent) than it is in relation to homemaking (18 per cent) and business education (18 per cent).

It was thought that administrators who now have in their schools reimbursed high school programs in a particular field might be more likely to emphasize further development of programs for high school youth than would administrators who did not have in their schools that particular program. Sixty-five per cent of all superintendents thought the emphasis in agriculture should be on programs for high school youth, but of those superintendents who had a reimbursed agricultural program in their high schools, 74 per cent thought the emphasis should be on programs for high school youth. The differences between administrators generally and those who in 1960-61 were operating reimbursed programs seemed to be negligible except in relation to agriculture. In the field of agriculture, superintendents and principals who had reimbursed vocational agricultural programs in their schools were more strongly in favor of the idea of putting the emphasis on programs for high school youth than were superintendents and principals generally.

A further analysis was made of the responses from principals by size of school, as to whether funds should be used to stimulate programs for high school youth or out-of-school youth and adults. Except in relation to the field of agriculture, size of school seemed not to be significant. In agriculture, the smaller the school, the higher the percentage of principals who favored using the funds to stimulate high school programs.

Opinions of School Administrators Regarding the Use of State and Federal Funds in the Development of State Schools, Area Schools, and/or Local Programs

The questionnaire sent to superintendents, principals, and local directors of vocational education included several items designed to determine the opinions of local school administrators in regard to establishing schools which would serve youth and adults on an area basis. First, the question was raised, "How can we best use state and federal funds for improving programs and services for high school youth who want to prepare for employment?" Three possibilities were given: (A) for the State Department of Public Instruction to organize, equip, and operate state and/or area vocational schools, (B) to organize, equip, and operate area vocational schools through cooperating school districts, and (C) for the local school districts to develop more adequate programs and services.

Table 5

Recommendations of Local Administrators by Positions as to the Use of Vocational Funds in the Event these Funds Were no Longer Used to Support Present High School Programs
(per cent)

Funds should be used to stimulate the further development of services and programs for:	Agricultural				Homemaking				Industrial				Business			
	Supt. N-367	DVE N-31	Prin. N-392	Total N-790	Supt. N-367	DVE N-31	Prin. N-392	Total N-790	Supt. N-367	DVE N-31	Prin. N-392	Total N-790	Supt. N-367	DVE N-31	Prin. N-392	Total N-790
High School Youth	(74) 65	(36) 29	(70) 60	(71) 61	(77) 76	(44) 48	(72) 70	(74) 72	(61) 61	(45) 45	(63) 62	(59) 61	(72) 67	(54) 55	(68) 69	(68) 67
Out-of-School Youth and Adults	(19) 23	(36) 33	(21) 27	(20) 26	(14) 15	(28) 23	(19) 22	(17) 18	(24) 22	(20) 29	(31) 24	(26) 24	(20) 17	(23) 19	(23) 18	(22) 18
Both	(3) 3	(19) 19	(5) 5	(5) 4	(3) 3	(17) 16	(5) 4	(4) 4	(9) 5	(25) 20	(4) 6	(10) 6	(4) 5	(15) 19	(6) 6	(6) 6
Response	(4) 9	(9) 19	(4) 8	(4) 9	(6) 6	(11) 13	(4) 4	(5) 6	(6) 12	(10) 6	(2) 8	(5) 9	(4) 11	(8) 7	(3) 7	(4) 9
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Figures in parentheses are based upon the responses of only those administrators who operated a reimbursed high school program in that field in 1960-61.

Summary and Conclusions

The respondents were asked to consider each of the above possibilities in relation to each field--agricultural, homemaking, industrial, and business education. The administrators' responses, by fields and by positions, were as follows. In relation to homemaking, 44 per cent checked "C" only, indicating that they would think it best to use funds to develop programs in local school districts. Thirty-one per cent checked "C" only in relation to agriculture; 31 per cent in relation to business; and 23 per cent in relation to industrial education. All other administrators, excepting those who did not respond to this question, favored using funds to develop state and/or area schools, either in addition to, or instead of local programs. For example, in the field of industrial education, 64 per cent indicated support for either state schools or area schools, or both. In the field of business education, 52 per cent; agricultural, 41 per cent; and homemaking, 33 per cent. It should be noted that 32 per cent of the administrators favored the use of funds in other than local districts; that is, state and/or area schools only, for the purpose of providing industrial programs.

Responses from only those administrators who operated a reimbursed high school program in a particular field in 1960-61 indicated that 47 per cent checked "C" only in relation to vocational agriculture, indicating that they thought funds should be used for local school districts to develop more adequate agricultural programs and services. Fifty-four per cent checked "C" only in homemaking; 45 per cent in industrial education and a similar percentage in business. Consistently, school administrators who had a program in a particular field felt more strongly that additional funds should be used for local school districts to develop more adequate programs and services in that field than did administrators generally.

One analysis indicated that the size of the principal's school appears to be most significant in relation to industrial education, as far as his opinions regarding state and/or area schools are concerned. Forty per cent of the principals with schools of over 1,000 students felt that in industrial education, funds should be used for local programs only, while the percentage of principals in smaller schools who felt this way was considerably smaller (500-999 students, 23 per cent; 200-499 students, 14 per cent; 0-199 students, 11 per cent). It is interesting to note that a high percentage of the administrators did not respond to this item.

A similar question was asked in relation to out-of-school youth and adults: "How can we best use state and federal vocational funds for improving programs and services for out-of-school youth and adults who want to prepare for employment?" Again the respondents were given the same three possibilities: (A) for the State Department of Public Instruction to organize, equip, and operate state and/or area vocational schools; (B) to organize, equip, and operate area vocational schools through cooperating school districts; and (C) for the local school districts to develop more adequate programs and services. Respondents were invited to consider each of these three possibilities in relation to each field--agricultural, homemaking, industrial, and business education. The responses to this question suggested that school administrators generally gave stronger support for state and/or area vocational schools for out-of-school youth and adults than they did for such schools for high school youth. Putting it another way, a smaller percentage of local administrators would favor limiting the use of state and federal vocational education funds for local school districts to develop more adequate programs and services for out-of-school youth and adults than would favor the use of such funds in such schools for programs and services for high school youth. Twenty-two per cent of the administrators checked "C" only to indicate how they felt state and federal vocational funds could be best used for improving agricultural programs and services for out-of-school youth and adults who want to prepare for employment; that is, these administrators felt that these funds could best be used to help local school districts develop more adequate programs and services. But when these same administrators were asked the same question in relation to agricultural programs and services for high school [illegible], 31 per cent checked "C" only. In relation to homemaking, 31 per cent checked "C" only in rel[illegible] to out-of-school youth and adults, and 44 per cent in relation to high school youth; industria[illegible] education, 17 per cent and 23 per cent; and business education, 22 per cent and 31 per cent. It was also interesting to note that there was a higher percentage of "no response" to this question when applied to out-of-school youth than to high school youth. This may mean that school administrators have not given as much thought to the problems of educating out-of-school youth and adults for [illegible]mployment as they have to high school youth.

An analysis of the responses of principals by size of school as to the best utilization of state and federal vocational funds for improving programs and services for out-of-school youth and adults preparing for employment revealed that principals of the larger schools (1,000 students and over), in comparison with principals of smaller schools, gave greater support to the idea of using funds for local school districts to develop more adequate programs and services; this is true in all four fields.

Opinions of School Administrators Regarding More Effective Use of Federal and State Funds

Assuming that state and federal funds were no longer to be used to reimburse the salaries of high school vocational teachers in current programs, funds would be released to reimburse other programs and services. A portion of the survey of local administrators was designed to determine more effective ways in which such funds might aid local school districts in the development of more adequate vocational programs for high school and for out-of-school youth and adults. A list of possible purposes

was introduced by the statement: "Here are several ways in which state and federal funds might be used to help local districts develop more adequate programs and services for high school youth." Respondents were then asked to check each item indicating that they either "agree" or "disagree."

Summary and Conclusions

The item on which there was most agreement was that more should be spent for job training for special groups (e.g., potential dropouts, slow readers, etc.). Eighty-five per cent agreed that more funds should be spent for this purpose, and the agreement was consistently high among administrators in the three categories; superintendents, 82 per cent; directors of vocational education, 84 per cent; and principals, 87 per cent.

Seventy-seven per cent agreed that more should be spent for vocational guidance services for employment-bound youth. There was a higher percentage of agreement among local directors of vocational education (84 percent) than there was among either superintendents (77 per cent) or principals (76 per cent).

There followed in order the following items: spend more for equipment for shops and laboratories --73 per cent; spend more for the preparation of instructional materials--72 per cent; spend more for research and evaluation--64 per cent; spend more for in-service training of teachers--62 per cent.

An analysis of the responses of principals, by size of school, regarding ways in which state and federal funds might be used to help local districts develop more adequate vocational programs and services for high school youth revealed that the differences among principals of different size schools were not significant. Principals of the smallest schools (0-199) apparently saw less need to spend more for occupational surveys and follow-up studies and vocational guidance services for employment-bound youth than did principals of larger schools.

The responses of local school administrators by positions regarding ways in which state and federal funds might be used to help local school districts develop more adequate vocational programs and services for out-of-school youth and adults, revealed the following areas of agreement and disagreement. The highest percentage of agreement to any item came from local directors of vocational education; 90 per cent agreed that more should be spent for vocational guidance services for out-of-school youth and adults. Only 68 per cent of the superintendents, and 65 per cent of the principals, agreed that this is where more funds should be spent. There was quite general agreement among all three categories of administrators (75 per cent) that more should be spent for instruction in evening school and adult classes. Directors of vocational education also felt rather strongly (84 per cent) that more should be spent for the development of instructional materials for use in specific areas of training. Seventy-two per cent agreed that more should be spent for instruction in full-time technical-terminal education on the community college level. A higher percentage of directors recommended that funds be used to stimulate the further development of services and programs for out-of-school youth and adults than did superintendents and principals.

The percentage of agreement and disagreement among principals by school size regarding the ways in which state and federal funds might be used to help local school districts develop more adequate vocational programs and services for out-of-school youth and adults indicated little difference in thinking. Here again, fewer principals of the smallest schools (0-199) agreed that more should be spent for vocational guidance services for out-of-school youth and adults than did principals of the larger schools.

Recommendations

The following recommendations are governed by the principle that the purpose of state and federal vocational education funds is to encourage the improvement and extension of vocational education programs at all levels. Continuous evaluation of reimbursement rates should be made of all vocational programs to accomplish this principle; such evaluation may cause rates of reimbursement to fluctuate in view of local needs and local support.

1. That the full rate of reimbursement be applied to the salaries of day-school teachers and coordinators in approved high school vocational programs for a period of five years and support withdrawn (one-third each year) for the sixth, seventh and eighth years. The withdrawal of support of programs currently operated and which have been supported for five or more years should begin with the school year 1964-65.

2. That the following services for youth of high school age be encouraged through higher rates of reimbursement:

   a. Instructional services which supplement the day-school vocational programs or meet the needs of out-of-school youth. Late afternoon and evening classes for

out-of-school youth, Saturday and summer classes for either in-school or out-of-school youth, and supervised farming practices during the summer months are examples of services which might be promoted through the use of state and federal vocational education funds.

b. Occupational counseling, placement, and follow-up services, those services designed to assist employment-bound youth make the transition from school to job. Career planning, educational planning, job placement and follow-up studies would be included in this category of services which might be promoted through the use of state and federal funds

c. Professional-growth services for teachers, supervisors, and administrators. Services in this category might include local curriculum workshops, community surveys, studies of the needs of youth and adults for vocational education, preparation of instructional materials, and self-evaluations of local programs.

d. New instructional services. Schools which have not previously provided vocational instruction in a particular field might be encouraged to provide new programs and services if the amount of aid from state and federal vocational funds were sufficient to offset some of the added costs in getting a program established. The school district proposing to initiate a new program should be required to justify the need for and feasibility of such a program.

3. That the following services for adults be encouraged by reimbursement incentives:

a. Instructional services for purposes of training persons engaged in agriculture, business, industry, and homemaking.

b. Instructional services for the training of technicians in agriculture, business, and industry in post-high school programs in community colleges, technical institutes, technical divisions of colleges and universities, area vocational-technical schools or centers, or similar institutions.

c. Vocational counseling services for adults who need help in making a more satisfactory occupational adjustment.

d. Professional improvement services which would include pre-service and in-service training of teachers of adult classes, development of more adequate instructional materials for adult classes, surveys to determine the needs of adults and the development of close cooperative relationships with business, industry, and agriculture.

4. That the following services, which would benefit both youth of high school age and adults, be encouraged through reimbursement policies:

a. Administrative and supervisory services. Every community school system large enough to operate a comprehensive vocational program needs specialized administrative and supervisory help to give leadership and direction to the program and to maintain standards.

b. Services on an area basis. Since many high schools are not large enough to provide a diversified program of specialized training, and some which are large enough are not interested in preparing youth for employment, state and federal vocational funds might be used to develop area vocational programs by providing a higher rate of reimbursement for instructional and other services and by providing reimbursement for a portion of the cost of equipping area schools or centers.

c. Purchase of equipment. Provision should be made for the reimbursement of local school districts for a portion of the cost of new equipment to modernize present facilities and to equip shops and laboratories needed in the development of new programs.

5. That a study be made to determine whether or not reimbursement of the salaries of day-school teachers in the community colleges, technical institutes, and technical divisions of colleges and universities is essential beyond the five-year period of full reimbursement to which high school programs would be limited under recommendation No.1.

Financing Vocational Teacher Education Services

One of the essential features of a good program of vocational education is an adequate supply of competent teachers. This fact was recognized in the first national vocational education act (the

Smith Hughes Act of 1917) which provided specific funds for the training of teachers and required that in order to use the money provided for the salaries of vocational teachers, a state must expend a specified amount for the training of teachers. While the George-Barden Act (1946) does not make a separate authorization of funds for teacher training purposes, it does state that the funds made available for the several vocational fields may be used for assisting the states and territories in maintaining adequate programs of teacher education.

Teacher education as used in relation to the national vocational education acts includes those activities which assist teachers or prospective teachers in securing the professional knowledge, abilities, understandings, and appreciations which will enable them to qualify for professional employment or advancement in teaching vocational subjects.

Teacher education programs in agriculture, home economics, and trade and industry have been offered in Michigan colleges under the support of state and federal vocational education funds since 1917. From 1917 until 1936 only three institutions were providing these teacher education services; since 1936, vocational programs have multiplied as has the number of participating colleges and universities. In 1960 Michigan had seven institutions which were reimbursed for counselor training, five institutions for trade and industrial teacher education, three for homemaking teacher education, three for distributive and/or office occupations, and one for agriculture.

The amount spent in support of these programs during the year 1960-61 was $229,668.83. Pursuant to this fact, it is interesting to note that from 1918 to 1954 it was the policy of the State Board of Control for Vocational Education to make full (100%) reimbursement from state and federal funds for the salaries and travel expenses of approved teacher trainers employed by designated institutions. With the change in the Board's policy, and the subsequent increase in the number of institutions designated to provide vocational teacher-training services, it became necessary to gradually reduce the rate of reimbursement; the rate for the year 1960-61 was 47.2 per cent.

The size of the state program of vocational education, in terms of full-time day-school teachers employed by the local schools in positions which are reimbursed, is a rough index of the teacher training needed--both pre-service training to supply replacements and to fill new positions, and in-service training of those currently employed. This number is given, by fields, for the period 1955-61.

School Year	Agri.	Hmkg.	T & I	Business (Dist. only)
1955-1956	290	426	209	85
1956-1957	299	443	236	67
1957-1958	299	462	260	74
1958-1959	278	496	284	123
1959-1960	270	493	243	109
1960-1961	240	506	244	103

Purpose of the Study

On the assumption that certain vocational teacher education services now provided by Michigan teacher education institutions would be provided even though there were no reimbursement from vocational education funds, and on the further assumption that vocational teacher education funds now being used for such services might be used to promote and stimulate needed services not now being provided, a survey of the institutions of higher education in Michigan operating reimbursed vocational teacher education programs was made during the academic year 1960-61.*

The study sought to obtain the answer to the following two questions:

1. If the reimbursement on vocational (agricultural) (homemaking) (industrial) (business) (counselor) teacher education programs were gradually withdrawn--over a three-year period--how would each of the services be affected?

2. Assuming that current vocational teacher education funds were to be used to reimburse in full certain types of essential (agricultural) (homemaking) (industrial) (business) (counselor) teacher education services (now provided inadequately or not at all) what types of services are most needed and should be supported by the use of these funds?

*Abstracted from a study conducted by Ralph C. Wenrich, A Study to Determine More Effective Ways of Using State and Federal Vocational Education Funds in the Further Development of Vocational Teacher Education in Michigan, a part of the Michigan Vocational Education Evaluation Project (Ann Arbor, Michigan: The University of Michigan, Office of Research Administration, June 1962).

Sources of Data and Methodology

Questionnaire responses from the following institutions were sought, received and evaluated in the light of the two questions listed above:

Institutions	Agri.	Hmkg.	Ind.	Bus.	Counselor
Central Michigan University		x			x
Eastern Michigan University					x
Michigan State University	x	x	x	x	x
Northern Michigan University			x		x
University of Michigan			x	x	x
Wayne State University			x		x
Western Michigan University		x	x	x	x

Reactions of "continued unaltered," "reduced," "eliminated," or "not applicable" were sought to the question "If the reimbursement on your vocational teacher education program were gradually withdrawn (say, over a three-year period), how would each of the following services be affected?"

a. Pre-service courses for prospective teachers.
b. In-service courses for employed teachers.
c. Assisting teachers through visits to local programs.
d. Conducting in-service training conferences for teachers.
e. Developing and distributing instructional materials.
f. Conducting research and other studies.
g. Assisting teachers in planning programs of study leading to vocational certification.
h. Cooperating with the State Board in conducting conferences and workshops for teachers.
i. Cooperating with the State Board in sponsoring youth groups.
j. Making provision for supervised practice teaching.

Summary and Conclusions

Each of the vocational teacher education fields is confronted with unique problems and conditions; therefore, the responses of the several institutions are examined first in relation to each field.

Agricultural Teacher Education

Agricultural teacher education is unique in that only one institution has ever been designated by the State Board to provide services in this field. In order to prepare persons adequately for the teaching of vocational agriculture, a college or department of agriculture is considered essential; Michigan State University is the only Michigan institution with an agricultural teacher education program concentrated in one institution for a period of over forty years. It has been possible to develop a program of high quality, including specialized services for teachers of agriculture.

Only two of the services listed in the questionnaire would be reduced (and none eliminated) were reimbursement withdrawn. Since there was no response given to the item dealing with "in-service courses for employed teachers of agriculture," one cannot predict what effect the withdrawal of reimbursement would have on this service. The responses suggest that all of the services would be continued with the exception of the following:

> Assisting agricultural teachers through visits to local programs would be reduced.
> Developing and distributing instructional materials for use in agriculture programs would be reduced.

It could be concluded that the program of agricultural teacher education would not be seriously affected if reimbursement were withdrawn. The predicted reduction in assistance to agricultural teachers through local visits and the development and distribution of instructional materials may mean that these services are too costly to be provided without reimbursement. "Research and experimentation" are seen as services most needed and for which vocational funds should be used.

Business Teacher Education

Homemaking teacher education is now supported, through the use of vocational funds, in three institutions. If reimbursement were withdrawn, one institution (Michigan State University) would continue unaltered all services, while another institution (Western Michigan University) would reduce 8

out of 12 services listed, and the third institution (Central Michigan University) would eliminate 7 out of 10 services now provided. There may be a relationship between the predicted effect of the withdrawal of reimbursement and the length of time the institution has been participating in the reimbursed program; Michigan State University has been reimbursed continuously since 1917, Western Michigan University since 1955, and Central Michigan University since 1960. Services most needed and for which vocational funds should be used, as listed by one institution,included most of the services now provided; apparently these services are not considered adequate and, in the opinion of the respondent, will need continued financial support to make them so. Another respondent listed "research and experimentation" as most needed services.

Industrial Teacher Education

Vocational industrial teacher education presents a unique situation in that there are five institutions engaged in a field which in 1960-61 involved only 244 full-time teachers employed by local schools on reimbursed programs. Only one institution (Michigan State University) would continue all services if reimbursement were withdrawn, but all institutions would continue their pre-service courses for prospective teachers and coordinators of vocational-industrial subjects, and assistance to vocational-industrial teachers in planning programs of study leading to vocational certification. The services most institutions would eliminate, if reimbursement were withdrawn, are:

Assisting vocational-industrial teachers and coordinators through visits to local programs (three institutions)

Developing and distributing instructional materials for use in vocational-industrial programs (one institution)

Cooperating with the State Board in sponsoring youth groups (one institution)

In summary all of the services listed would be provided by one institution (Michigan State University); another institution (Wayne State University) would "reduce" only one service and "eliminate" none; while the three other institutions would either reduce or eliminate most of the services. Regarding most needed services, one institution listed research and experimentation, another suggested "teacher trainers who can work with local communities" in promotional activities, another institution suggested research studies, workshops, and laboratory equipment.

Counselor Training

Although counselor training is relatively new as a part of the reimbursed vocational teacher education program, the number of institutions participating in the reimbursed program has grown from one (Michigan State University) in 1944-45 to seven in 1960-61. Only one institution indicated that it would continue unaltered all of the services to counselors, but five institutions said they would continue their pre-service courses for prospective counselors if reimbursement were withdrawn, and four would continue both their pre-service and in-service courses for counselors. The services most likely to be eliminated if reimbursement were withdrawn are:

Assisting counselors through visits to local programs (five institutions)

Conducting in-service training conferences for counselors (two institutions)

Developing and distributing instructional materials for use in guidance programs (three institutions)

Conducting research and other studies in guidance (one institution)

Cooperating with the State Board in conducting conferences and workshops for counselors (one institution)

Cooperating with the State Board in sponsoring youth groups (two institutions)

Making provisions for supervised experience for counselors (one institution)

One institution said it would also eliminate the services of: (1) offering consultant services, (2) providing lay groups with counseling information, and (3) state and area committees. In response to the question regarding services most needed and for which vocational funds should be used, research was mentioned twice, while consultant services, supervised experience, experimentation, conferences and workshops, promotion and cooperative curriculum development were also suggested.

General Conclusions

When the responses from the institutions in all fields were examined, it was concluded that most programs would continue unaltered without reimbursement as far as the following three services were concerned: (1) pre-service courses for teachers, counselors, and coordinators; (2) assisting teachers, counselors and coordinators in planning programs of study leading to vocational certification or some other credential; and (3) making provision for supervised practice teaching or other experience. The services which would be eliminated most often were:

1. Assisting teachers, counselors and coordinators through visits to local programs.
2. Developing and distributing instructional materials.
3. Cooperating with the State Board in sponsoring youth groups.
4. Conducting in-service training conferences for teachers, counselors, and coordinators.

Recommendations

1. That the State Board adopt the following policies:

   a. That reimbursement for present programs of vocational teachers' education be reduced over a three-year period so that by the school year 1965-66 general reimbursement would be eliminated.

   b. That beginning in 1965-66, reimbursement be provided only for those services essential to the promotion and further development of vocational education, and which services would not be provided adequately without such reimbursement.

      This study would suggest the following services might be included:

      Assisting teachers, counselors, and coordinators through visits to local programs,

      Developing and distributing instructional materials (including programmed materials),

      Conducting in-service training conferences for teachers counselors, and coordinators.

      The most necessary services to be reimbursed under this plan might change as the needs change. Reimbursement on services provided under this arrangement should cover all costs. This policy could be implemented, in part, beginning with the school year 1964-65.

   c. That at least 25 per cent of the funds budgeted for teacher education be designated for research and experimentation.

      Teacher education institutions should be invited to submit proposals with the understanding that any proposal accepted may be financed in full through the use of these funds.

2. That a committee be appointed by the State Board to review and recommend to the State Director the proposals for research and experimentation which should be funded under 1, c above.

Part 2

Organization for the Administration of Vocational Education

Michigan is committed to an educational philosophy that delegates to local boards of education maximum responsibility for planning, organizing, and executing educational programs. Few prescriptions have been imposed by the Legislature or the Department of Public Instruction. Local boards of education, through their administrators, have made determinations regarding the administrative structure in programs of vocational education. In recent years the administrative aspects of vocational education have become increasingly complex. Future demands may result in an even higher degree of complexity. The local community faces many problems arising from the surge in industrial and technical development. The obsolescence of skills, lack of work opportunities for the aged, young people and minority groups, the retention of young people in school, and a host of other concerns have never been more vexing. Relationships with governmental agencies dealing with manpower problems have become intricate and involved and closer contact with the industrial-business, agricultural community is needed to minimize program lag. The expansion of vocational education in the community college,

competition for students, and inadequately trained counselors pose additional problems. Strong, vigorous leadership is necessary if local schools are to fulfill their commitment to young people and adults. A school system's adequacy depends not only on the individual competency of its administrators but also on the extent to which this competency is released.

There has been no systematic study in Michigan of the pattern organization for the administration of vocational education programs. Yet authoritative sources emphasize the importance of organization in determining the effectiveness of educational programs. Therefore, in an evaluative study, some attempt should be made to determine whether or not effective programs of vocational education possess characteristics that make for successful vocational programs, in contrast with those that do not. Furthermore, the University of Michigan Advisory Committee indicated that such a study ranked second in importance to the task force given major responsibility for investigating various aspects of administration, organization, and supervision. The remainder of this section of the chapter discusses the highlights of the study conducted.*

Purpose of the Study

The purpose of this particular study is to shed more light on the organization of vocational education in Michigan high schools, to determine authority positions and to relate the pattern of distribution of authority to the effectiveness of the vocational education programs.

Procedure

The procedure was to identify two groups of schools: Group X, schools whose programs were thought to be more effective than the average; and Group Y, schools whose programs were thought to be less effective than the average. To classify these schools, heads of services of the Department of Public Instruction's Division of Vocational Education were used as a jury of experts. These people, along with their assistants, have close contacts with a large number of schools in the state and are acquainted with all the fields of vocational education. They make frequent visitations to the local school districts and are in written and oral contact with the teachers, directors, and administrators of the school districts.

No set criteria for "effectiveness" of a program were given the jury members. They were merely asked to select the two groups of schools, each using his knowledge of the existing programs in Michigan and in the individual schools and making a subjective judgment based on his interpretation of effectiveness. The lists which the five jurors separately drew up were then consolidated and re-presented to the assembled jurors for consensus. The two groups of schools, X and Y, were chosen at two different periods.

The researcher then devised a questionnaire which attempted to determine who within a particular school or school system had the initial responsibility for performing selected administrative functions. The questionnaire underwent a series of refinements, review by professionals, and a trial run before being sent to the following personnel in each school system selected for inclusion in the study: the superintendent, the high school principal, the director of vocational education (if such a position had been designated by the school), and teachers of courses presumed to be preparing students for post-high school employment.

Altogether, 268 questionnaires were sent to personnel in the 39 Group X schools; of these, 240 or 90 per cent were returned. Seventy-eight questionnaires were sent to personnel in the 12 Group Y schools; of these, 60 or 77 per cent were returned.

Later a sub-group of the X schools was designated. This sub-group (Group Xx) consisted of ten Group X schools whose figures for system-wide enrollment and number of professional teachers employed were closer to those for the Y Schools than were those for the total Group X. Sixty-three questionnaires were sent to personnel in the Xx schools, and 55 or 87 per cent were returned.

Several high schools were visited to gain greater background and insights into administration, organization, and vocational education. These visits afforded an opportunity to check functions covered by the survey instrument; moreover, face-to-face contact aided in clarifying actual practice, provided an in-depth extension of the survey, and assisted in developing a "feeling" for the school and effectiveness of the educational enterprise.

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*Abstracted from a study conducted by Clarence C. Mason, A Study of Organization for the Administration of Vocational Education in Selected Michigan High Schools, a part of the Michigan Vocational Education Evaluation Project (Ann Arbor Michigan: The University of Michigan, Office of Research Administration, June 1963).

Findings

The findings are presented in the complete report through a series of 34 tables and explanatory text. Documentation reveals that the original identification of Groups X and Y by the jury was confirmed by self-identifications made by personnel within the schools studied.

Specific topics covered in the findings are: self-identification, hiring new personnel, supervision, dismissals, evaluation, budgets, job descriptions, lay advisory committees, summer and evening school programs, statements of objectives, departmental structure, directors of vocational education, relation of practical arts and vocational programs, follow-up studies, and structure of organization.

The summarization of the findings is based on the two-fold purpose of the study: to determine authority positions over administrative matters and to relate the pattern of authority distribution to the effectiveness of the vocational education program.

Distribution of Authority

In analyzing the positions to which authority had been distributed, it was discovered that in all groups of schools studied there had been almost total delegation of authority by the school boards to the professional personnel. Table 6 indicates only a one per cent retention of authority at the board of education level in the three groups of schools studied. This table also indicates only one per cent authority level for lay advisory committees in the three groups.

System-wide committees had even less authority. Group X schools gave this position a one per cent response; the other two groups showed no response. The high school committee had responses varying from one per cent in Group Y schools to three per cent in Group Xx schools, an insignificant amount. Presumably boards of education and school executives do not regard committees as proper agencies to exercise administrative authority; such thinking would be consistent with generally accepted administrative theory.

Table 6

Opinion by Group as to Who in the School or School System Initially Makes Decisions
(In per cent)

Response	Group X N-240	Group Xx N-55	Group Y N-60
Teacher, Coordinator, Counselor	18	21	19
Department Head or Chairman	6	9	5
High School Committee	2	3	1
Principal or Assistant Principal	22	28	28
Director of Vocational or Adult Education	28	11	13
System-wide Committee	1	--	--
Superintendent, Assistant Superintendent, Curriculum Director, Director of Special Services	21	26	32
Lay Advisory Committee	1	1	1
Board of Education	1	1	1

Table 6 indicates that the department heads or chairmen had an authority delegation of five per cent in the Group Y schools, six per cent in Group X schools, and nine per cent in Group Xx schools. Somewhat surprisingly, departmentalization does not carry with it a strong delegation of authority. The extent of delegation indicated above contrasts with a positive response (from 76 per cent in Group Y schools to 84 per cent in Group Xx schools) to the question of whether or not there were

departments for vocational in the respondent's school. This portion of the study would seem to bear out those who say the department head or chairman is merely a figurehead, possibly with influence but certainly without authority.

An 86 per cent of responsiblity in Group Xx schools, 89 per cent in Group X schools, and 92 per cent in Group Y schools was left to be distributed among the superintendent, high school principal, director of vocational education, and individual teachers.

Table 6 indicates the superintendent of schools or one of his immediate central staff personnel retained 32 per cent of the authority for initial administrative decisions in the Group Y schools, as compared with a 26 per cent retention in Group Xx schools and a 21 per cent retention in Group X schools.

The amount of delegated authority which was retained at the high school principal's level was 28 per cent for both the Group Y and Group Xx schools, and 22 per cent for the Group X schools. Individual teachers had 21 per cent of the authority distributed to them in the Group Xx schools, 18 per cent in Group X schools, and 19 per cent in Group Y schools.

The amount of authority delegated to the director of vocational education was 28 per cent in Group X schools and 11 and 13 per cent respectively in Group Xx and Group Y schools. However, when it was asked whether or not the school system had a director of vocational education, the following positive response was shown: Group X, 63 per cent; Group Xx, 36 per cent; and Group Y, 55 per cent. This apparent dichotomy was similar to that of the department heads or chairmen. The explanation of the dichotomy is probably the same in both cases: the position exists more as a title than as an authority position.

Effectiveness of Program

The respondents tended to agree with the jury of experts' value judgment concerning the effectiveness of the vocational education programs in answering the question, "How well does your school's total program compare with the programs of other Michigan high schools in preparing graduates for immediate entry into gainful occupations?" Group X respondents tended to see their program as more successful than the Group Y respondents--72 per cent "very good" and "good" responses in the X group compared with only 47 per cent such responses in the Y group. The Xx group fell into a middle position with a 60 per cent response. The differences in patterns of authority distribution between the Y schools and the Group X and sub-group Xx schools may be considered as organizational factors contributing to the relative effectiveness of the programs.

The Group X school systems averaged 5,683 pupils and 232 teachers; the Group Y school systems averaged 1,862 pupils and 71 teachers. With such a great difference in the size, a great difference in the distribution of authority was expected. Therefore, sub-group Xx was derived as being more similar to Group Y in size of operation. Group Xx schools systems averaged 2,082 pupils and 80 teachers.

The study was not expected to show more similar patterns of response for Group X and Group Y schools than it showed for Group Xx and Group Y or even for Group Xx and Group X schools. However, similarity of response between Group X and Group Y did permeate the findings.

It was interesting to note that according to the response patterns, Group X and Group Xx schools were similar in effectiveness of program, and dissimilar in size of operation and organizational structure; whereas Group Y schools were dissimilar to Group X and Group Xx schools in effectiveness of program, but similar to Group Xx schools in size of operation and similar to Group X schools in organizational structure. These anomalies are not explained by data in the present study; however, the answer may lie in the fact thatGroup Y schools had based their organizational structure on other, larger schools rather than on their particular organizational needs.

Another organizational factor which may influence the effectiveness of vocational education programs is the delegation of authority. Table 6 indicates that Group Y boards of education had delegated as much authority to the professional personnel as had the boards of education in the other groups. However, this table indicates that the superintendent of Y schools retains 32 per cent of the authority, as compared with the 26 per cent retained by Xx superintendents.

It is difficult to comment on delegation of authority to department heads and to directors of vocational education, since the study does not show how closely title is related to authority. However, in all groups of schools meaningless titles should be disposed of and authority distributed where it can carry out the purpose of the organization most effectively.

Recommendations

Based on the findings of the study, the conclusions, and the researcher's observations in the field, the following recommendations are made to strengthen programs of vocational education through organizational structure:

1. That written policies be established which clearly indicate the place of and goals for vocational education programs in the school enterprise.

2. That written policies be established which clearly indicate the duties and relationships of personnel in the vocational education programs.

   The response to the questions, "Who prepares written objectives for vocational departments?", and "Who prepares written objectives for individual vocational courses?" indicated a direct relationship between the existence of such written objectives and the strength of the school program. Likewise, the answer to the questions, "Who prepares job descriptions for various vocational positions?", Does your school or school system have a job description for the position of director of vocational education?", and "Have the respondent's duties been clearly defined so he knows what is expected of him?', also suggested some direct relar tionship between a positive response and the strength of the school's program.

3. That positions carry responsibility and authority as well as title, and that either a departmental chairman or director of vocational education be designated where the size of operation and/or need for such position is warranted. Further, that titles without corresponding responsibility and authority be eliminated.

   When the responses in Table 6 are compared with the response to the question of whether or not there is a director of vocational education, it seems that many positions exist in title but not in corresponding responsibility and authority.

4. That the superintendent be encouraged to delegate to the principal the responsibility for program appraisal, for supervision, and for hiring and dismissal of teachers, and that where the size of operation warrants sub-delegation, the principal continue to be charged with primary responsibility for these functions of administration.

   Response to the question of how well the school's total program compares with the programs of other Michigan high schools in preparing graduates for immediate entry into gainful occupations shows that the principal is in an advantageous position to evaluate the effectiveness of the vocational program. Response to the question of "Who directly supervises teachers of high school vocational subjects?" shows that the Group Xx principal is the chief supervisor of vocational courses; this principal is also shown to be the primary person to recommend non-renewal of contracts for unsatisfactory vocational teachers.

5. That teachers be delegated a clearly stated role in preparation of budget requests and requests for purchase of material and supplies.

   Group Xx teachers are indicated as playing an important role in response to the questions, "Who prepares budget requests for vocational education?", and "Who initiates requests for purchase of materials and supplies for vocational programs?"

6. That graduates of vocational programs as well as dropouts receive the same degree of attention in follow-up studies as college-bound youth; further, that such information be used as part of the appraisal of effectiveness of vocational programs.

7. That each school and school system study its organizational structure in light of the character and extent of the vocational education program needed for the community.

This study has one other dimension which the researcher had "read between the lines" of the responses to the survey instrument; encountered in discussions with leaders in the field; and verified through school visitations. Though not documented in this study, it is a dimension of equal importance with the statistical findings: namely, that the effectiveness of any program of vocational education is largely determined by how much interest the chief administrators and the faculty have in preparing students for immediate entry into gainful occupations and how sound their ideas are for doing so. The organizational structure can facilitate or impede the effectiveness of a program, but by itself cannot make an otherwise ineffective program effective.

CHAPTER V

VOCATIONAL TEACHER EDUCATION IN MICHIGAN

The present chapter of the report is concerned with the programs of vocational teacher education maintained in Michigan institutions of higher education. Although sources for information are manifold about specific activities of vocational teacher education, relatively little has been done to consolidate this information; consequently, attention is given to a review of institutional activities, patterns of curricula and peculiarities inherent in each of the fields.

Procedure

Responsibility for investigation of teacher education fell under the jurisdiction of Western Michigan University. The project co-directors appointed a task force of thirteen individuals representing eight institutions, two local communities, and the Department of Public Instruction. Composition of this group included: eight teacher educators, a counselor trainer, a local director of vocational education, a local school administrator, a supervisor of student teaching and a representative from the Department of Public Instruction.

Four subcommittees were appointed to appraise teacher education in agriculture education, business education, home economics education and industrial education. A total of ninety-nine professional leaders participated in subcommittee activities. The basic data concerning teacher education programs were submitted in a series of four subcommittee activities. These were later synthesized into one report, Vocational Teacher Education in Michigan. In this final report only certain major findings will be summarized since it is impossible to include the mass of data and findings that emerged. Several of the subcommittees have indicated that the product of their investigations represented a progress report since the opportunity for self-study has triggered the necessity for continued effort.

Part 1

Agricultural Teacher Education

The subcommittee on agricultural teacher education investigated four areas of teacher education: the undergraduate student, the pre-service program, in-service program, and the graduate program. Investigation of each of these areas was not exhaustive; only certain aspects were studied.

Michigan State University has the sole responsibility for the preparation of teachers in vocational agriculture in Michigan, since one institution can readily supply the number of teachers needed. Furthermore, a land grant institution has the facilities and staff both in technical subject matter and professional education, exceedingly difficult to duplicate in other institutions. In the period 1950-1961, a total of 500 teachers who qualified for a vocational secondary provisional certificate graduated from the four-year program. Table 1 summarizes the graduates by year and the distribution according to teaching and non-teaching placements.

Data abstracted from annual federal reports revealed that in the year 1961-62, 231 departments of agricultural education employing 238 teachers were operative in Michigan. Total enrollments in these departments reached 15,518. This enrollment figure included high school or all-day classes, young farmer classes and adult farmer classes. Two hundred and twenty of the teachers employed graduated from Michigan State University; the remaining eighteen graduated from nine other in-state or out-of-state institutions.

The average age of vocational agriculture teachers was 35.5 years. Average teaching experience was 8.9 years; average tenure in present teaching position was 6.8 years.

Fifty-nine per cent had permanent teaching certificates; 38 per cent, provisional certificates; and 5 per cent were teaching on special certification. Thirty per cent had earned the master's degree. Approximately ninety per cent received their master's degree from Michigan State University. Salaries ranged from a low of $4,800 to $9,799 a year, averaging about $6,391 for a 12-month period.

An analysis of teaching time of the 238 teachers revealed that slightly over 30 per cent devoted 100 per cent of their workday to teaching agriculture. About 70 per cent spent anywhere from 14 to 79 per cent teaching agricultural subjects. This latter group either served as administrative assistants or taught other subjects. Table 2 shows the number teaching other subjects or engaged in other activities.

Table 1

Qualifiers For Michigan Vocational Secondary Provisional Certificates,
Vocational Agriculture Education*

Year	Number	Teaching Agriculture In-State	Teaching Agriculture Out-State	Non-Agriculture Teaching Positions	Non-Teaching Positions**	Military	Not Placed***
1961	29	26	0	0	3	0	0
1960	35	22	0	3	6	4	0
1959	35	22	1	4	7	1	0
1958	47	23	1	8	6	9	0
1957	42	25	0	0	17	0	0
1956	37	18	0	0	18	0	1
1955	28	12	1	1	14	0	0
1954	26	16	0	1	1	8	0
1953	46	18	0	6	8	13	1
1952	52	28	1	10	9	0	4
1951	67	34	1	15	17	0	0
1950	56	42	2	9	3	0	0
Total	500	286	7	57	109	35	6

* Figures taken from annual federal reports.
** Change in report form does not give specific breakdown in each category; assumed most are in military service.
*** Most in this category represent students who did not wish employment, address unknown, and the like.

Table 2

Other Subjects Taught by Vocational Agriculture Teachers

Subject	Number of Teachers
Science	78
Shop	35
Study Hall	20
Mathematics	18
Social Studies	5
Conservation	4
Guidance	4
Administrative Assistant	2
Athletics, Band, Business Education, Cooperative Education, English, Family Living, Geography, IOFT, Special Education (one in each subject)	9
	173

In 1960-61, forty-seven teachers or 16 per cent conducted young farm classes with a total enrollment of 704. Average enrollment was about fifteen per teacher. One hundred eighteen teachers or 45 per cent taught adult farmer classes with an enrollment total of 2,791; the average enrollment per teacher was 23.

Some Characteristics of the Undergraduate

In order to ascertain some characteristics of students preparing to be vocational agricultural teachers, the freshman class of 1961-62 was examined. Nineteen students comprised the freshman class, 17 coming from 16 Michigan high schools; two were out-of-state residents. All nineteen were single and one had military experience. Their average age was 19. Four of the 19 transferred into the vocational agriculture curriculum; three from the College of Agriculture at Michigan State; one from an out-of-state institution.

One of Michigan's requirements for certification in teaching vocational agriculture is a minimum of two years of farm experience after reaching the age of fifteen. A Farm Experience Inventory, a self-administered instrument, was used to determine the extent to which the freshman class met the farm experience requirement. The inventory was filled out by the student and then evaluated by faculty members on the basis of a five-point qualitative scale ranging from "excellent" to "not acceptable" and a three-point quantitative scale. Slightly more than sixty per cent fell within the "fair" to "not acceptable" in quality of experience and most students lacked the minimum quantity of experience, which leads to the conclusion that students enrolling in vocational agriculture possess less farm experience than in the past. This can be attributed to three factors: (a) students enroll at an earlier age; (b) limitation of time to accumulate the necessary experience; and (c) difficulty in securing suitable experience.

Sixty-three per cent of the 1961-62 class had 4-H experience ranging from one to ten years. Sixty-eight per cent had F.F.A. experience and took vocational agriculture in high school. Students enrolling in recent years tend to have more farm youth organization experience than previously.

The majority of the students indicated their former teachers of vocational agriculture had been instrumental in their selection of vocational agriculture teaching as a career. This corroborates a study conducted several years ago in which the same conclusion was reached.

Pre-Service Program

The pre-service or four-year undergraduate program included both formal courses and extra curricular activities. Institutional policy, state certification and the state plan were identified as determinants of the undergraduate program. A total of 192 quarter credit hours are required for graduation. Approximately 47 per cent of the curriculum is devoted to general-education-and-science block, 37 per cent to professional education.

Appraisal of the Pre-Service Program

In order to determine the effectiveness of the pre-service program, it was decided that reactions should be solicited from two separate groups, experienced teachers and vocational agricultural students enrolled as seniors in the undergraduate program. The first group was composed of vocational agri-

culture teachers who graduated during the five-year period 1956-1960. During that five-year period, the pre-service program had not changed materially. The second group was composed of 17 seniors. This number constituted the entire senior class for the year 1960. It was hypothesized that experienced teacher responses would differ from students in training.

A survey instrument was prepared to appraise six activities: curriculum, summer experience program, extracurricular, student teaching, counseling and guidance, and general. Responses were based upon a three-point rating scale as well as free choice.

Findings of the Survey

In general, responses from the two groups surveyed were not too dissimilar. Where marked deviations existed, these are noted under each of the activities appraised.

Curriculum

Respondents indicated there was good balance between the general education and science courses. Fifty per cent stated that insufficient numbers of courses were offered in agricultural science, agricultural economics, and agricultural engineering. According to the teacher group, undue emphasis in the curriculum was given to general professional education courses and not enough time was given to agricultural education courses and student teaching. General professional education courses ranked highest on the list requiring reorganization. Students felt that the agricultural electives were sufficient, whereas the teacher group showed a preference for more agricultural electives. (Agricultural electives are selected from technical courses in Dairy, Livestock, Poultry, Farmstead Beautification, Farm Forestry, Crops and Soils, Land Use, and Fruits and Vegetables). Seventy-five per cent of the survey group said that the combination of required courses was satisfactory. Fifty-four per cent thought the required courses adequately met the needs of the vocational agriculture teacher. Fifty per cent felt a five-year preparation program would be beneficial.

Summer Experience Program

In addition to student teaching, undergraduates may spend a two-week apprenticeship with an experienced agriculture teacher through the summer experience program, for which three-quarter credits are offered. The responses by the survey group revealed that those who had participated in the summer experience program tended to rate the activity higher than those who did not. Fifty per cent thought the experience was highly valuable and should be required of all agricultural education majors.

Extracurricular Activities

The majority of the respondents indicated they had participated in the Agricultural Education Club activities. Eighty-four per cent said the experience was of great value, while the remainder reported it was of some value to them in their student teaching as well as in their subsequent teaching. Most respondents suggested that more skills and leadership activities should be incorporated into the Club program.

Student Teaching

Seventy-five per cent of the respondents stated that a full term of student teaching was adequate, although several suggested additional time was required and that fewer students should be assigned to a center. The same number rated their student teaching experience as good.

Counseling and Guidance

All respondents replied that sufficient information and assistance had been provided regarding academic requirements, course offerings, scheduling, and the like. All of the respondents indicated that they had had an academic advisor with whom they felt free to consult at any time. Ninety-two per cent felt the advisement system was adequate and should be retained.

General

This portion of the survey was devoted to future occupational goals and the reasons why teaching agriculture was selected as a career. Fifty per cent of the respondents reported that interest in agriculture was the chief reason, while 24 per cent stated that teaching in general was the paramount factor. Seventy-five per cent considered teaching vocational agriculture as their permanent career; 16 per cent considered it a temporary occupation and 8 per cent were undecided as to their future plans. Eighty per cent stated that the undergraduate program was broad enough in scope to prepare them for related occupations other than teaching.

In-Service Teacher Training Program

A comprehensive program of in-service activities is offered thrcugh collective efforts of the College of Education, College of Agriculture and the Department of Public Instruction. The constantly expanding technology in agriculture and changes in instructional technique require that administrators and teachers in the field be given ample opportunity for professional growth on a continuing basis. In-service activities fall into ten categories; (1) credit courses, (2) first year teacher follow-up, (3) instructional materials, (4) service letter, (5) professional meetings, (6) annual conferences, (7) area conferences, (8) research projects, (9) Michigan Education Association meetings, and (10) other professional activities. A detailed description of these activities is included in the publication, Vocational Teacher Education in Michigan.

Appraisal of the In-Service Education Program

A second survey was conducted in connection with this study to ascertain the reactions of the experienced vocational agriculture teachers to the in-service education program. A 10 per cent random sample was taken of teachers graduating between 1955-1960. Twenty-two teachers were included in the sample. A 78 per cent response was received. Teaching experience ranged from two to six years. The following table summarizes the response.

Table 3

Survey Responses to In-Service Training Activities

Item	A Great Help	Some Help	Very Little Help
1. Follow-up visits with first year teacher	12	4	1
2. Individual visits with teachers in their schools	12	4	1
3. Individual visits with administration at time of local school visit	7	9	0
4. The service letter	11	6	0
5. Technical subject-matter meetings	14	3	0
6. Staff participation on professional committees	10	7	0
7. Staff participation at professional meetings	9	8	0
8. Preparation, demonstration, and discussion of teaching aids	14	3	0
9. Staff publications and writings	10	7	0
10. Correspondence to teachers about submitted problems	5	12	0

The teachers surveyed were requested to list suggestions and recommendations for improving or strengthening the in-service program. Comments were also solicited by several staff members as they made contact and otherwise worked with teachers of vocational agriculture. The suggestions and recommendations are listed below:

1. All vocational agriculture graduates from Michigan State University should have a major in agriculture.

2. The responsibility for organizing an in-service training program should rest with the agricultural education staff of the College of Education, Michigan State University.

3. The responsibility for the presentation of technical agricultural information should rest with the College of Agriculture, Michigan State University.

4. A graduate program for vocational agriculture teachers should include a master's degree in technical agriculture with a concentration in areas such as dairy or animal husbandry or other technical areas. This degree should not be the same as that offered in agricultural education.

5. Extension courses with credit should be available at centers in the state to accommodate all types of self-improvement programs.

6. Special Programs:

   The vocational agriculture teachers should be given released time to attend certified special programs such as:

   a. Dairy school at Michigan State University.
   b. Mastitis team meetings.
   c. Brucellosis eradication program meetings.

7. Literature:

   a. Newsletter from departments in the College of Agriculture should be made available to the teachers of vocational agriculture.

   b. Fact sheets on specific topics should be sent to all vocational agriculture departments on a continuing basis.

   c. Bulletins. The policy of sending bulletins in quantity should be determined by the topic and the size of the vocational agriculture department. Single copies should be available to all departments.

   d. Journals. It would be very desirable if the vocational agriculture teachers were active members of such societies as the American Dairy Science Science Association or the Society of Animal Production. A research journal is available from each society.

8. The program of assembling teaching units and teaching aids should be evaluated according to (1) use of vocational agriculture teachers and (2) the development of strong vocational agriculture leaders.

9. All vocational agriculture teachers should be responsible for working with others in a total agricultural program in a county.

Credit Courses

Some special problems attend offering credit courses on an extension basis. Twenty-two extension courses in agricultural education were offered throughout the state during the period, 1956-1961. Twenty courses were conducted in centers in the lower peninsula and two in the Upper Peninsula. Additional courses could have been offered; however, limitation in staff time and funds interfered. The relatively small number of teachers in the Upper Peninsula accounts for the difference in number of course offerings.

Average enrollment in extension courses was approximately 12. The low enrollment can be attributed to several factors. Thirty per cent of the agriculture teachers already had the master's degree. The remaining 166 teachers were so widely scattered geographically that courses scheduled in any one location attracted a limited number of teachers. Furthermore, the specialized subject matter was not conducive to attracting other than agriculture teachers.

Forty courses in technical agriculture were offered throughout the State by the College of Agriculture during the five-year period, 1957-1961. Ninety per cent were conducted in the lower peninsula. This substantiated the complaints of vocational agriculture teachers in the Upper Peninsula that technical agriculture courses were not available.

Graduate Education in Vocational Agriculture

Graduate education is available on both the master's and doctoral level in the College of Education.

Master's Program

The stated objectives for the master's degree program were:

1. To develop further competency as a teacher in a public school system.

2. To provide basic preparation in research and broad areas of education for students of agricultural education who plan to pursue work beyond the master's degree.

3. To develop further competency as a teacher of vocational agriculture.

4. To prepare for entrance into leadership positions in vocational education.

The master's degree program in agriculture education includes work in three areas: general professional education, specialized professional education, and technical agriculture. A total of forty-five credit hours usually is required for completion of the program. As a general rule, one-third of the graduate's program is dedicated to each of these areas.

Professional Education Area: All graduate students are required to take a course in Principles of Curriculum Improvement. Additional courses are selected in guidance, social-philosophical foundations, learning theory, or administration.

Specialized Professional Area: Courses normally included in this area are in agricultural education and vocational education. Seminars and advanced problems courses are based upon the specific needs of the students.

Technical Agriculture Area: The graduate student may strengthen his background in technical agriculture content fields through this portion of his program. Courses may be selected from agricultural economics, agricultural engineering, animal husbandry, dairy, farm crops, horticulture, poultry science, soil science, rural sociology, and closely related sciences. Since many teachers need to strengthen their background in certain areas or overcome certain personal or professional weaknesses they may enroll in one or two courses in any department in the university. Examples are speech, sociology, and language.

For teachers who aspire to leadership positions in agricultural or vocational education or to work beyond the master's degree, there is generally less emphasis on the technical content areas and more on basic preparation in the professional areas.

Appraisal of the Master's Degree Program

In order to determine the effectiveness of the master's degree program it was decided to survey two groups: (1) teachers who had received their master's degree, and (2) students who were enrolled in the master's program. The survey was administered in connection with the Annual Conference held on the Michigan State University campus. One hundred sixty teachers were requested to fill out the survey form. Eighty-eight, or 55 per cent, responded. Thirty-six respondents had completed their master's work and fifty-two were in various stages of completion. Twenty-seven of the 36 who had completed their master's, earned it within five years of the date of the survey, five had been earned within the previous six-to-ten-year period and four had received their degrees prior to the ten-year period.

Reactions to the value of courses taken in the master's degree program are summarized in Table 4. Instructions supplied in connection with the survey form stressed the fact that the respondent was to react only to those courses in which he had been enrolled.

Other questions in the survey revealed the following findings: the majority of respondents indicated that the chief reason for pursuing the master's was for professional improvement; the next largest group indicated financial gain and the smallest, advancement. Seventy-three per cent of the fifty-five teachers responding endorsed more off-campus credit courses. Courses in technical agriculture, Table 5, seemed to have the most appeal.

Doctoral Programs in Agricultural Education

The doctoral programs in agricultural education are designed for persons with exceptional scholastic aptitude who show promise of becoming leaders in agricultural education or in closely related fields. The positions for which the doctorate qualifies a person include: college teacher of agricultural education, instructional materials specialist, research worker (state or national), state supervisor or consultant of vocational education in agriculture, local or state administrator in vocational education, consultant for international programs, education specialist in industry or government. Programs leading to the Doctor of Philosophy and Doctor of Education are offered.

A program encompassing approximately two full years of study beyond the master's degree is planned for each candidate. The concentration of study in the various fields will vary with the candidate's goals, background of study, current status of understanding, and experience. The candidate

for either degree is expected to choose a research problem and to report the research in the form of a thesis. The thesis is usually equivalent to 36 credits. Language requirements for the Doctor of Philosophy degree require that the candidate pass examinations demonstrating his ability to read German and French at a level of proficiency needed to conduct the research work. It is possible to take additional course work in another professional area to offset the requirement of one language. The Doctor of Education Degree requires reading ability of one language or demonstrated competency in the field of statistics.

Table 4

Respondent Reaction to Value of Courses
In Master's Degree Program

ITEM	Reaction		
	Very Important	Important	Not Important
General Professional Education			
Administration	22	13	6
Curriculum Improvement	21	22	6
Guidance	23	17	2
Teacher & Administration	13	21	1
Psychological Problems of the Classroom	6	19	8
Trends in Education	5	20	9
Specialized Professional Education			
Farm Mechanics	37	10	2
Young Farmer	15	24	2
Adult Farmer	18	22	1
Course Building in Vocational Agriculture	29	14	5
Vocational and Practical Arts Education	0	1	0
Technical Agriculture and Cognate Education			
Soils	36	24	0
Animal Husbandry	36	7	0
Sociology	7	24	4
Crops	2	1	0
Horticulture	1	0	0

Table 5
Off-Campus Courses Requested

Course Area	Frequency
Technical Agriculture	33
Agricultural Education	12
Guidance	5
School Administration	3
Sociology	2

The student must pass written and oral comprehensive examinations. The written examination includes three areas: (1) Agricultural Education, (2) the related field outside the College of Education, and (3) the general field of education. The first two of these examinations are under the direction of the appropriate members of the candidate's guidance committee, supplemented by other faculty members appointed by the dean of the college. The third examination is directed by a standing examining committee created for the purpose by the college. The topics covered will represent those ideas and concepts which give structure and meaning to the field of education. The oral examination is held after the written examinations have been completed and evaluated. The purpose of the oral examination is to probe items which appear from the written examination to need further investigation, and items not included in the written examination. The oral examination is directed by appropriate members of the guidance committee and personnel selected from the standing committee by its chairman.

The comprehensive examinations must be passed within five calendar years after the date of admission to the doctoral program. Before taking the examination, the student must have completed at least 80 per cent of his required course credits, not including credit toward his thesis.

The candidate is examined orally upon presentation of his thesis. The examination centers on the thesis itself, but it also includes examination on relevant basic concepts.

Appraisal fo the Doctoral Program

Two separate studies were conducted to appraise the doctoral program in agricultural education. The first study constituted a follow-up of all individuals who had been awarded the doctorate degree since the program was instituted. A self-administered survey form was constructed containing seven categories for which reactions were requested: admission procedure, language requirements, course requirement, dissertation, staff and facilities, examination procedure and placement. A total of twenty-four specific items were listed. Responses to some items were on the basis of satisfactory or unsatisfactory ratings; others, on a yes-no check list.

Findings: A detailed analysis of the findings is beyond the scope of this report; consequently, only a summary is provided.

Admission Procedure: Items in admission procedure included (1) the application form, (2) testing program, (3) the interview, and (4) scholarship requirements. Respondents indicated that the application form, the interview and scholarship requirements were satisfactory. Two of the 17 reacted negatively to the testing program and said it was unsatisfactory.

Language Requirements: Three items were included in this category: (1) language requirement, (2) language substitution option, and (3) statistics option. Twenty-three per cent felt the language requirement was unsatisfactory. The language substitution option and the statistics option were satisfactory to the remainder. As shown by specific comments, those responding negatively questioned whether the benefits were commensurate with time, money, and effort expended.

Course Requirement: Four items were included in this category: (1) greater variety in courses, (2) independent study, (3) courses outside of education, (4) courses in more fields of education. Eight per cent of the respondents said a greater variety of courses would be beneficial and fifty per cent requested additional courses other than professional education. Twenty-three per cent favored more independent study. Twenty-eight thought courses in other areas of education should be available.

Dissertation: Items included in this category included: (1) problem selection, (2) credit allocation, (3) flexibility in pursuing a problem. All respondents rejected the selection of a research problem from a prepared list, implying maximal freedom in problem selection. Less credit allocation for the dissertation and more flexibility in researching a problem was recommended by one respondent.

Staff and Facilities: Items listed in this cateogry included: (1) advisory, (2) other College of Education faculty, (3) faculty from other fields, (4) library, (5) statistical, (6) study facilities.

Of the 17 respondents, all indicated they received adequate assistance from advisers. One of the 17 indicated dissatisfaction with advisory committee members in the College of Education and in another discipline.

Fourteen of the 16 respondents said the library facilities were good; two thought they were inadequate. Statistical equipment and facilities were rated as adequate by 13 of the 15 respondents. Two thought this area could be improved. Study facilities met with less approval since only 10 of the 15 respondents felt they were adequate, four said they were fair and one felt they were poor.

Examinations: Items listed in this category were (1) too early in the program; and (2) too late in the program.

All respondents said the comprehensive examinations came at the right time in their program.

Placement: Individuals were requested to respond to the question as to the quality of the placement service. Ten of the 12 respondents found it satisfactory; two said it was unsatisfactory. Others were on leave from positions and, therefore, found it unnecessary to utilize the placement service.

Appraisal by Doctoral Candidates in Agricultural Education

The second study concerned with the appraisal of the doctoral program was directed to the candidates currently working toward the doctorate in agricultural education. A similar survey instrument to that mentioned in the study above was devised, except that irrelevant items were deleted. Additional items were included since several modifications in the doctoral program had been adopted recently. The respondents were requested to check items on the basis of a three-point rating scale. A summary of the responses is presented in tabular form.

Admission Procedure: Improvement in the testing program and to a lesser degree in the entrance interview was advocated according to responses in Table 6.

Table 6

Responses to Admission Procedures

Item	Response			
	Number	Good	Fair	Poor
Application for Admission	13	11	2	0
Scholarship Requirements	13	13	0	0
Testing Program	11	6	3	2
The Interview Procedure	13	9	4	0

Program Planning: Fifty per cent of the respondents, according to Table 7, suggested that certain weaknesses may exist in planning course work and research in connection with the dissertation. Selection procedures in regard to adviser and guidance committee appeared to be satisfactory.

Table 7

Responses to Program Planning Procedures

Item	Response			
	Number	Good	Fair	Poor
Course Work	11	7	4	0
Research	11	7	3	1
Selection of Guidance Committee	12	10	2	0
Selection of Advisor	12	10	2	0

Examinations: The small number of responses to this category was probably due to the number of doctoral candidates who had not completed their examinations. The general examination in education which is designed to test the competency of the candidate in the overall field of education received unfavorable reaction by over fifty per cent of the seven responding.

Table 8

Responses to Examination Procedures

Item	Response			
	Number	Good	Fair	Poor
Preliminary Examination	6	5	1	0
Oral Examination	5	5	0	0
Comprehensive Examination	7	3	4	0

Language Requirement: Neither the language requirement nor the substitution of twelve hours of course work was endorsed very highly. Almost 70 per cent said the language requirement was unsatisfactory and fifty per cent reacted in a similar manner to the course substitution.

Table 9

Responses to the Language Requirement

Item	Response		
	Number	Satisfactory	Unsatisfactory
Language for Ph.D.	12	4	8
Substitution of Course Work	12	8	4
Substitution of Statistics in Ed.D.	12	10	2

General Recommendations

1. Reimbursable funds for teacher education in vocational agriculture should be specifically identified. The teacher education staff in agriculture should be given the opportunity to recommend uses to which the monies will be put.

2. The staff in agricultural education should be given responsibility to develop program, and the various activities making up such program. These activities and the emphasis on certain activities, may be varied from year to year, depending upon need.

3. The teaching of on- and off-campus courses in teacher education in agriculture at the undergraduate and graduate level becomes the function of the university and, as such, should be financed and promoted by the university.

4. Institutional policies regarding minimum enrollments in courses should not be allowed to handicap vocational education staffs in providing essential specialized professional education courses.

5. Specific reimbursable funds should be set aside in the very near future for an intensive evaluation study of the total program in teacher education for vocational agriculture, with implications for changes as the findings of such a study might indicate.

6. Staff and clerical positions should be filled in keeping with personnel needs, to adequately perform the functions of an on-going program of teacher education in vocational agriculture.

7. Noninstitutional, reimbursable funds should continue to be used to assist communities which provide student teaching, to allow time for the supervising teacher to engage in his teacher education activities.

Part 2

Business and Distributive Teacher Education

Although services for the preparation of business education teachers have been in existence for some time, reimbursed vocational teacher education in business and distributive education is a relatively late arrival. Federal funds through the Smith-Hughes Act of 1917 were appropriated only for teacher education in agriculture, home economics, and trade and industrial education. Business and distributive teacher education have been, in a sense, disadvantaged. With the passage of the George-Deen Act of 1936, additional federal funds have been available for distributive education. Only state funds have been used for the support of business teacher education for the preparation of office coordinators.

For purposes of this report, business and distributive teacher education are discussed separately, although in practice most institutions providing teacher education services have interlocked both phases. Business education as mentioned in this report encompasses both office occupations and basic business and economics education. Distributive education is confined to distributive occupations.

Procedure for the Study

Two separate sub-task forces were appointed to conduct studies in business and distributive teacher education. The business education sub-task force included representatives from those

institutions of higher education that were affiliated with the Michigan Association for Teacher Education in Business. The following nine institutions participated: Central Michigan University, Eastern Michigan University, Ferris State College, Michigan State University, Northern Michigan University, University of Detroit, University of Michigan, Wayne State University, and Western Michigan University. The University of Michigan assumed the responsibility for this sub-task force. Data were secured through reports from the various institutions and conferences held by this group.

The distributive education sub-task force was composed of 15 individuals representing teacher educators, local public schools, business, and a consultant from the U. S. Office of Education. Data were accumulated through meetings, conferences and the review of statistical and descriptive reports. Western Michigan University provided the leadership for this group.

Both of these groups confined their activities to the preparation of a general format by which each institution could appraise its own program.

Cooperative Office Teacher Education

Cooperative office education in Michigan is in its twenty-third year. In 1962, there were 37 specialized office cooperative programs conducted on the high school level and six on the post-high school level. Thirty-two high schools and two post-high school institutions offered both a program of office and a program of distributive education planned by the same teacher-coordinator. Forty-four diversified cooperative programs of office, distributive, and trade and industrial education were conducted in 44 high schools. Thus, office education was a part of 121 programs. Three thousand, two hundred and ninety-seven students received instruction in 1962 in office occupations, through enrollment in a cooperative education program of some type.

Thirty-seven teacher-coordinators had the sole responsibility for coordinating a program in office occupations; 35 coordinating both an office program and a distributive program; 39 were coordinators of diversified cooperative programs involving office, distributive and trade and industrial occupations.

Teacher-coordinators for office occupations have been prepared by the University of Michigan, Michigan State University, and Wayne State University. Since the majority are recruited from the ranks of experienced classroom teachers, most are prepared at the graduate level. The teacher education institutions provide on-campus courses during the year and in summer sessions, offer courses in extension centers, make school visitations and participate in other teacher education activities, including coordinator conferences, preparation of instructional materials and research.

Other Business Teacher Education

Business teachers are trained at eight state colleges and universities and at one private university. These include: Central Michigan University, Eastern Michigan University, Ferris State College, Michigan State University, Northern Michigan University, University of Detroit, University of Michigan, Wayne State University, and Western Michigan University.

All institutions conduct both undergraduate and graduate programs with the exception of Ferris State College. Four administrative patterns are used to locate responsibility for business teacher education curricula. At Eastern Michigan University, Central Michigan University, Western Michigan University, Northern Michigan University, and Ferris State College, the responsibility for programs for business teachers resides in the Department or School of Business. At Wayne State University and at the University of Michigan, the program is administered in the School of Education. At Michigan State University, the undergraduate program is a dual responsibility of the College of Education and the College of Business; the graduate program is handled by the College of Education. The University of Detroit gives joint responsibility for the program to the school of Business and Arts and the School of Sciences.

Precise data on enrollments, staff, budgets, and other aspects of the program were not available, since some institutions enroll business teaching majors in departments having other majors such as secretarial and accounting. An estimated 350 business teachers are certified per year.

The Business Education Program

The program for business teachers in all of the participating schools was almost exclusively concerned with preparation for secondary school teaching. It reflected several influences such as the liberal arts college, the state certification code, and the North Central Association of Secondary Schools and Colleges.

The colleges were consistent in allotting about 50 per cent of the program to liberal arts. They required a minimum of about 12 semester hours in each of the following: linguistics-speech, science-

mathematics, and social studies. The state requirements of a major and two teaching minors was commonly met by a major and minor in the business field, and one teaching minor in a cognate field. Most of the schools represented offered a choice of two majors (secretarial and general business), with a few offering a third choice, distribution.

The curriculums in general represented a loose fit to student needs. Offerings and elections are on the basis of subject names or titles, frequently according to availability. In practically all cases there was reason to assume that content and teaching method were geared to the needs of students preparing for business positions rather than teaching. Furthermore, subject matter could be more closely fitted to the needs of prospective teachers, economics for teachers, conservation for teachers, and others.

Each of the following was a course required by at least one school. Those marked with an asterisk (*) were required by at least half of the colleges represented:

* accounting	management
* economics	personnel
* communications (report writing)	statistics
* typewriting	marketing
law	shorthand
office machines	income tax
introduction to business	finance
business policy	business mathematics
records management	secretarial science

Professional Education

Instruction in professional education in all of the colleges conformed to the requirements of the certification code, and differed from institution to institution in organization pattern and amount rather than in kind. The twenty semester hours defied comparison and tabulation because of the nature of these differences, but in all cases included the following:

Social foundations of education (history of education, philosophy of education, educational sociology, and others).

Psychological foundations (educational psychology, child growth and development, guidance, mental health, and others).

Public education (organization, administration, and curriculum).

Methods of teaching (general methods, general methods in business subjects and methods of teaching specific subjects, such as secretarial, distribution, general business).

Directed teaching (this laboratory experience was considered a most important part of the preparation of teachers, and the great variety of practices was shown).

Some relied on campus schools controlled by the department or school of education, where the student teacher was in close and frequent contact with instructors of method courses and with bucines education instructors. Some used off-campus schools where articulation of practice teaching with professional classes was likely to be very loose. Practice varied as to the amount of laboratory experiences. Some schools arranged for full-day experience of six weeks or more; some planned half-day assignments for one semester only. Variety of experience was sought by any of the following: (1) additional experience in teaching in both a major and a minor; (2) in two different subjects, i.e. typing and bookkeeping; (3) at two levels, i.e. a junior high school and a senior high school experience.

Supervision varied. Some arranged to have student teachers supervised by members of the business education faculty, or by general methods teachers, and some appointed resident supervisors. There were faults with each of these arrangements, and little confidence was expressed that the full possibilities of the laboratory experience were being realized.

Distributive Teacher Education

Distributive education in Michigan is in its twenty-fifty year. In 1962 there were 34 distributive education cooperative programs conducted on the high school level and four on the post-high school level. Thirty-two high schools and two post-high school institutions offered both a program of distributive and a program of office education, coordinated by the same teacher-coordinator. Forty-four diversified occupations programs of office, distributive, and trade and industrial education were conducted in 44 high schools.

Thirty-six teacher-coordinators had the sole responsibility for coordinating a program in distributive occupations; 35 coordinating both a distributive and office program, and 39 were coordinators of diversified occupations programs of which distributive education was a part. Two thousand seven hundred and fifty-four students received instruction in distributive occupations in a cooperative education program of some type. Although enrollments have periodically fluctuated there has been a noticeable upward trend since 1937.

Four institutions have been designated by the State Board of Control for Vocational Education to prepare distributive education coordinators. These include Michigan State University, University of Michigan, Wayne State University, and Western Michigan University. At Western Michigan, distributive teacher education is located in a single department, while at the other institutions it is a part of a total program of business and distributive education.

Western Michigan University operates a rather extensive undergraduate and graduate program, whereas the other institutions conduct programs on the graduate level only. In addition to offering professional courses on campus, the institutions offer extension courses to upgrade coordinators, provide school visitations and consultative curriculum aid, develop instructional materials, and participate in coordinator conferences and other in-service activities.

The Forward Look in Preservice Distributive Teacher Education

The pre-service distributive teacher education program of the future has an unparalleled challenge before it. The nation-wide emphasis upon the program approach to distributive education has very definite implications. The program approach involves a complete curriculum and implies a series or sequence of distributive experiences beginning very early in the individual's school career. It is conceivable that a person could begin the study of distribution as early as kindergarten and continue on through elementary school experience, to junior high school graduation, on to community college, and into adulthood.

With such a broad program approach, the distributive teacher education program of the future will need to meet this challenge. The following set of beliefs should undergird distributive education and the new distributive teacher education program:

Belief number one: A general introduction to the field of distribution should begin in the elementary grades--as early as the kindergarten--units devoted to the study of the distribution process and its career implications.

The new distributive teacher education program should provide instructional units for the preservice preparation of elementary teachers. It is conceivable that a course, "Teaching of Distribution for the Elementary School," could be offered. This would be similar to such courses as "Teaching of Reading" or "Industrial Arts for the Elementary Teacher."

The distributive teacher education institution should also provide topical outlines dealing with content, lists of audio-visual aids available and suitable for this level, and story books and other materials designed to be read by the elementary pupils.

Belief number two: Career opportunities in distribution should be adequately covered in the junior high school in those courses dealing with careers and/or occupations.

The new distributive teacher education program should provide instructional units for the preservice preparation of the junior high school teacher, so that he may better understand its career opportunities.

Belief number three: The distribution process should be adequately covered in the high school by the course or courses dealing with general or basic business.

The new distributive teacher education program should provide instructional units for the preservice preparation of general business teachers dealing with the distribution process and the teaching of it.

Belief number four: Specialized courses in the various aspects of distribution should be a part of the curricular offerings in the 11th and 12th grades of all comprehensive high schools and community colleges.

The new distributive teacher education program should prepare teachers of distribution through a pre-service curriculum which will provide the individual with considerable depth in subject-matter preparation and practical work experience.

Belief number five: Cooperative work-study technique should be a part of the distributive education program in all comprehensive high schools and community colleges.

The new distributive teacher education program should prepare teacher-coordinators through a well-planned pre-service curriculum which has a proper balance of general and specialized education. The specialized area should provide for depth in subject matter, supervised work-experience, and a well-planned student teaching internship.

Belief number six: A distributive education program in the comprehensive high schools and community colleges should have a youth organization for the distributive education students.

The new distributive teacher education program should devote some time in the pre-service teacher preparation of teachers to the importance and need of a youth organization for distributive education students.

Belief number seven: Distributive adult education should be made available through the community schools for all individuals engaged in distributive businesses.

The new distributive teacher education program should provide adequate preparation for those individuals, (educators and business people) involved in organizing, supervising and/or teaching of distributive adult education classes.

Belief number eight: Supervision should be provided by the school administration for the distributive education program in the community schools.

The new distributive teacher education program should provide instructional units on the planning and supervising of the distributive education program in the schools.

Conclusions

1. The number of cooperative occupational education programs in the public high schools and community colleges, in which vocational distributive education is a part, has remained nearly constant during the past five years. This is true for student enrollments for the past ten years.

2. Distributive education as a specialized cooperative program is found in only 28.3 per cent of Michigan's public class A high schools and in none of the smaller high schools.

3. The majority of the teacher-coordinators presently employed by the public schools having cooperative programs including distributive education did not earn undergraduate or graduate degrees from a designated distributive teacher education institution.

4. Approximately 85 per cent of the teacher-coordinators are male.

5. On an average, the salary of the teacher-coordinator is greater than the average public school teacher.

6. Approximately 59 per cent of the teacher-coordinators of cooperative programs, in which distributive education is a part, devote full time to the position. The other teacher-coordinators have additional assignments.

7. The presently designated distributive teacher education institutions appear to be providing a rather complete program of service for vocational distributive teachers, as evidenced by a comparison with the activities described in the U. S. Office of Education policy bulletin, Administration of Vocational Education.

8. Student teaching centers for prospective distributive teacher-coordinators need greater attention on planning, supervision, and designation procedure.

9. The present supply of teacher-coordinator candidates is inadequate for meeting present and future demands.

10. The certification requirements of the reimbursed distributive teacher education institutions are more demanding than the minimums as set forth in the State Plan.

Recommendations

1. The designated teacher education institutions should more actively recruit students for their programs, to provide more trained teacher-coordinators for distributive education. A concentrated state-wide effort led by the State Office of Vocational Education would also help the situation.

2. The designated teacher education institutions, with the assistance of the State Office of Vocational Education, should give greater attention to developing student teaching centers, to designation procedure, and supervision.

3. The designated teacher education institutions should be encouraged to devote more time to the preparation of instructional materials.

4. The designated institutions should be encouraged to devote more time to research, particularly of the experimental typs.

5. More schools in the state should be encouraged to allow the teacher-coordinator to devote full time to the program.

6. The designated distributive teacher education institutions should be encouraged to keep certification standards higher than the minimums set forth in the State Plan.

Part 3

Home Economics Teacher Education Program

Description of the Study

Purposes of this study were: (1) to secure facts relating to the present status of home economics teacher education in Michigan; (2) to determine strengths and weaknesses of the well-developed and underdeveloped areas of the home economics teacher education program; and (3) to draw some conclusions and make recommendations warranted by the facts, to raise questions, identify issues or indicate areas which need further study.

The study was primarily carried on through regular administrative channels and the organization of the Michigan Home Economics Teacher Educators. The origin, purposes, responsibilities, and challenges of the Michigan Vocational Education Evaluation Project were explained to all participants of the study. Criteria developed by recognized professional groups at national and state levels were assembled and utilized. The study involved individuals and groups responsible for specific aspects of the home economics teacher education program.

In general, five sources of data were used: (1) catalog materials submitted by the participating institutions; (2) official reports and records; (3) summary reports which were prepared after special conferences involving home economics faculty; (4) questionnaires to home economics teachers; and (5) focused interviews with teacher educators.

Eight institutions participated in the study: Albion College, Central Michigan University, Eastern Michigan University, Mercy College, Michigan State University, Northern Michigan University, Wayne State University, and Western Michigan University. The home economics and family life staff of the Department of Public Instruction also participated. Over 550 individuals participated directly in the study. Of these, fifty-four were home economics faculty and state staff, 29 were supervising teachers and 472 were home economics teachers in reimbursed vocational programs, 1961-62.

Supply and Demand for Home Economics Teachers

Twelve institutions in Michigan had four-year programs for the preparation of home economics teachers, and eight of them were approved by the State Board of Control for Vocational Education.

Table 10 indicates an upward trend in the number of approved institutions but a downward one in those reimbursed. The number of reimbursed institutions had decreased from six to three. This was not in keeping with the national trend, which showed an increase in the number of institutions both approved and reimbursed.

Enrollment data indicated that (1) there was a potential supply of women in Michigan colleges, and (2) over 90 per cent of these women were attracted to major curricular areas other than home economics.

An analysis was made of the enrollment of juniors and seniors in home economics education from 1958 through 1961 in all eight institutions. The average number for each year was 355.5 If there were a trend in numbers of students enrolled, the last three years indicated a downward one.

As for seniors graduating from home economics teacher education, the number in all eight institutions varied from a low of 116 (in 1958-1959) to a high of 158 (in 1960-1961), averaging 142 per year. Michigan State University consistently graduated the largest number, with Western Michigan second.

Table 10

Number and Status of Michigan Institutions
Preparing Home Economics Teachers

Name of Institution	Status 1917-61		Status 1961-62	
	Approved	Reimbursed	Approved	Reimbursed
Approved by State Board of Control for Vocational Education				
Michigan State University	1917	1917-62	Yes	Yes
Eastern Michigan University	1917	1917-47	Yes	No
Northern Michigan University	1937	1944-47		
		1937-38	Yes	No
Wayne State University	1937	1944-47	Yes	No
Western Michigan University	1937	1937-39		
		1944-47		
		1955-62	Yes	Yes
Central Michigan University	1941	1944-47		
		1960-62	Yes	Yes
Albion College	1952-53	No	Yes	No
Mercy College	1960	No	Yes	No
Others				
Adrian College	No	No	No	No
Marygrove College	No	No	No	No
Sienna Heights	No	No	No	No
Emmanual Missionary College (Andrews College)	No	No	No	No

During the two-year period (1958-59 and 1959-60), a total of 325 majors in home economics education graduated. Table 11 furnished information regarding the placement of graduates by institution. Of this group, 231 or 71 per cent accepted teaching positions the first year after graduation. Sixty-two per cent accepted positions in vocational or reimbursed homemaking programs and 38 per cent accepted positions in non-vocational programs. Sixteen per cent married and did not teach; nine per cent accepted other positions; and three per cent continued to study and did not teach.

The percentage of graduates of teacher training programs who taught home economics the first year after graduation had been third highest in the ten-year period, 1947-57, in the central region.

Data about the present and future demands for home economics teachers are difficult to estimate because of many unknown factors. The demands are greater than the supply in those fields in which positions are held primarily by women. In the fall in 1958 it was reported by the U. S. Office of Education that "there were at least 500 unfilled home economics teaching vacancies in the secondary schools and at least 222 vacancies in college and university teaching and research positions. There were 265 unfilled positions for county agents and assistants and 59 positions on State Extension Service staffs."

During 1961-62, more than one thousand home economics teachers in Michigan were employed in vocational and non-vocational homemaking programs at the secondary level. Of these, 524 were in vocational programs. Considering the projected school enrollments in grades 7-12 in the next decade, 1963-64 to 1973-74, the number of home economics teachers should be increased by 50 to 60 per cent to maintain the present program.

The community college program is growing in Michigan and home economics courses are frequently included in the curriculums. The Cooperative Extension Service and adult education programs also need the services of home economics teacher education graduates. Estimates of the needs in these fields are not available.

Colleges and universities will continue to need staff members who have completed considerable graduate work with a minimum of a master's degree but, increasingly, graduate work above the master's

level. Michigan home economics teachers, after completing work for certification and advanced degrees, tend to remain as classroom teachers in Michigan.

Table 11

The Placement of Home Economics Education Students Who Graduated in 1958-59 and 1959-60 from Eight Approved Institutions*

Institution	Graduates	Teaching		Not Teaching		Other
		Vocational	Non-Vocational	Married	Further Study	
Albion						
1958-59	4	0	3	0	0	1
1959-60	3	1	2			
Central Mich.						
1959-59	17	7	4	2	2	2
1959-60	12	12	0			
Eastern Mich.						
1958-59	17	11	3	1	--	2
1959-60	19	15	2	2		
Mercy						
1958-59	3	0	1	0	0	0
1959-60	4	3	1			
Michigan State						
1958-59	74	25	25	11	1	12
1959-60	57	31	9	14	1	2
Northern Mich.						
1959-59	3	2	1	0	0	0
1959-60						
Wayne State						
1958-59	17	0	11	3	1	2
1959-60	20	1	11	4	4	
Western Mich.						
1958-59	22	6	5	5	1	5
1959-60	53	29	10	12		2
Total 1958-59	157	51	53	22	5	24
Total 1959-60	168	92	35	32	5	4

*Data secured from "Enrollment and Placement of Graduates in Home Economics Education" submitted by consultants, State Department of Public Instruction and further checked with the various institutions.

There are few sources for estimating the future demands for home economics teachers at the local level; in the community college program; in adult education; in positions of leadership at the state level; in colleges and universities, including teacher educators and specialists in home economics subject fields. For future planning, it is imperative that this task be delegated to appropriate groups and the results be made available to persons responsible for recruiting, education and placing of home economics teachers.

Faculty in Home Economics Teacher Education

Only limited data were collected relating to the faculty. However, data about number of faculty, degrees and rank in home economics and home economics education were secured in 1960-61.

The administrative units in the various institutions varied considerably. The majority of faculty were engaged in teaching. A few had responsibilities for administration, non-credit field

service, follow-up of first year teachers and for research. In 1960-61 there were 127 home economics and home economics education faculty, including full-time administrators. Of the 112 with academic rank, 70 per cent had ranks of assistant professor or instructor.

The number of faculty in the eight institutions ranged from 84 to 2. Four of the institutions (or 50%) had an average of 3.3 faculty in home economics and home economics education. The faculty distribution was 84, 17, 7, 7, 5, 3, 2, 2.

As to academic degrees, 25 or 19.7 per cent had doctor's degrees, 101 or 79.5 per cent had master's degrees, and one person had a bachelor's degree. Some faculty were involved in completing requirements for the doctoral degree, and a few have received their doctoral degrees since 1960.

While the size of the staff in the various institutions appeared adequate for the purposes of the home economics department involved, the prevailing attitude in most institutions was that the size of the staff was not adequate.

Pre-Service Home Economics Teacher Education

The purpose of the undergraduate program is to assist the prospective homemaking teacher to develop her intellectual capacities so that she is able to think critically, apply principles and make generalizations. The curriculum is based upon the liberal studies--humanities including philosophy, social science and natural science. The emphasis in courses in home economics shall be intellect centered rather than activity-centered. The end product of the program is an educator, not a technician.

The program shall be based upon competencies, particularly important for the teacher in present-day society. These include knowledge and understanding in the areas of human development, the family as a social institution, management of resources both human and non-human, role of the consumer in aesthetic needs of the family, including food, clothing and housing.[1]

The General Pattern of Distribution of Credit Hours

Table 12 indicates the distribution of credit hours within the individual institutions.

An analysis of individual institutions indicated that approximately 39.6 per cent (or 46.9 credits) of the average total credits required for graduation (122.5) were devoted to courses in general education. These credits were distributed somewhat differently in the individual institutions, but tended to include communication skills, American thought and literature, the physical, natural and behavorial sciences, and the arts and humanities.

Twenty-eight and three tenths per cent or approximately 34.6 credits were allocated to professional courses in home economics, including the family, child development, consumer education, family economics, management, family health, foods and nutrition, clothing and textiles, housing-home furnishings and household equipment. While the distribution of credits in home economics courses varied, the general pattern was very similar in the eight institutions. In some institutions, certain so-called home economics areas were taught in departments other than in home economics.

The tendency was to meet only the minimum requirements in education, 22.4 semester or 33.6 term credits, or approximately 17.8 per cent of the total credits required for graduation. The remainder of the program, 18.4 semester hours or 15.3 per cent, was spent in recommended electives and in further meeting of the minors for certification.

Description of the Required Home Economics Courses. All institutions required at least one course in the following areas: family and child development, home management, family economics, art, home furnishings, nutrition, food preparation, meal management, clothing selection and construction, and textiles.

Some of the diversities encountered in the eight institutions were:

1. Some subject matter areas were taught as separate courses, and others were integrated in more general courses. An example of this was in the area of textiles: in one institution it was included in three integrated clothing courses rather than taught separately.

2. There was no particular pattern as to grade level. Required home economics courses could be taken anywhere from the freshman to the senior year.

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[1]Statement prepared at Michigan State University under the leadership of Dr. Thelma Porter.

Table 12

Distribution of Courses by Semester Hours of Credit in Pre-Service Undergraduate Curricula in the Eight Approved Institutions

Institution	General Education		Home Economics Education		Teacher Education		Electives		Total
	Hours	Per cent	Hours	Per cent	Hours	Per cent	Hours	Per cent	
Albion	48	38.6	30	24.2	20	16.2	26	21.9	124
Central Michigan	49	39.6	33	26.6	19	15.3	23	18.5	124
Eastern Michigan	43	34.7	38	30.6	21	17.0	22	17.7	124
Mercy	51	42.5	30	25.0	23	19.2	16	13.3	120
Michigan State*	44	34.3	50	38.3	20	15.5	16	11.9	130
Northern Michigan	48	38.8	35	28.2	23	18.5	18	14.5	124
Wayne State	50	42.4	28	23.7	31	26.3	9	7.6	118
Western Michigan	42	33.9	33	26.6	22	17.7	27	21.8	124
AVERAGE	46.9	39.6	34.6	28.3	22.4	17.8	18.4	15.3	122.5

*Term hours equated to semester hours

3. In some institutions required home economics courses were taught outside of the department. For example, family relationships was taught in the college of education in one institution, and child development was taught in the psychology and education department in another.

4. The number of credits required in the different subject matter areas varied from institution to institution.

5. There was a wide variation in the prerequisites for required courses in home economics.

6. There was a variation in the relative emphasis given to lecture and laboratory experiences in the various courses.

7. There were variations in the number of credits assigned to each course.

Description of Required Professional Education Courses. Inquiry into the general nature of the professional education courses required before and following the student teaching experience was limited. However, institutions seemed to meet the professional education requirements in different ways. Required courses placed emphasis on (1) psychological foundations, nature and direction of learning and child development; and (2) school and society, foundations of education and similar courses. In some institutions, students had additional observation and experiences in schools outside of the student teaching experience. Not all institutions had resident student teaching experience, but approximately one half of them did.

All eight institutions had special methods courses. Seven institutions submitted course outlines which were then analyzed by a special committee to determine common and diverse elements in the content.

The Common Elements

1. All institutions indicated in their objectives a concern for helping students

understand the scope and purpose of homemaking education.

2. Each of the institutions gave some consideration to program planning or to curriculum in either the objectives, experiences or topics included in their course outlines.

3. Each of the institutions included some consideration to teaching techniques. This was indicated in both objectives and in learning experiences or topics.

4. Each of the institutions considered instructional materials in their objectives, learning experiences and/or topics.

Differences or Variability

1. Not all of the institutions indicated that they include "vocational education" in their home economics methods courses.

   Four of the institutions indicated in their objectives that "vocational education" was a major concern. Five of the institutions indicated this in the experiences and/or topics.

   Vocational education, when it was included in the home economics methods course, might deal with:

   a. Vocational homemaking in Michigan, including personnel and reports.

   b. Present scope of homemaking and family living--vocational education and the role of homemaking in the total field of family life education.

   c. National vocational education acts.

   d. Curricula or programs--relation to general education.

   e. Requirements of the vocational homemaking program.

   f. Qualifications of homemaking teachers for the vocational program.

2. In some institutions, enrichments were not included in program planning, but were set up separately and/or not included in the home economics methods courses. These aspects included:

   Future Homemakers of America Organization
   Home visitations
   Home experiences
   Advisory committees
   Adult homemaking classes
   Conference periods

3. In a few institutions, some consideration was given to:

   a. Basic concepts of learning.

   b. Management of the department - including the room, its equipment, finances, extra class responsibilities, school parties and storage.

Description of Some Common Practices in Student Teaching

Certain requirements or criteria for student teaching and the supervision of student teaching centers were described in the State Plan for Vocational Education. The major responsibility for the student teaching experience in some institutions was assumed by special coordinators. Specific responsibility actually assumed by the home economics teacher educators and by the special coordinators varied somewhat among the institutions. The coordinator appeared to assume less responsibility in some institutions than in others.

Fifty per cent of the institutions had full-time resident student teaching centers. During 1959-60 the eight institutions reported they had 58 student teaching centers; three were campus laboratory schools and 55 schools were "off-campus centers." Within these centers there were 69 home economics supervising teachers.

The student teaching experiences showed some evidence of (1) less emphasis on the so-called voca-

tional homemaking philosophy and requirements than in the past, and a tendency for the experience to be a more broadly conceived experience for teachers; (2) less supervision of student teachers by the home economics teacher educators than formerly, with a shift in the role and responsibility to supervising teachers and student teaching coordinators; and (3) less communication between the supervising teacher and the home economics teacher educator because of pressures and problems of time. The common practice was for the home economics teacher educator to visit the center twice a term or semester.

Appraisal of the Pre-Service Program for Home Economics Teachers

In appraising the undergraduate program, a questionnaire was sent to 113 home economics teachers who had recently completed their undergraduate program and had from one month to three years of teaching experience. Sixty-six per cent responded. They were asked whether they felt the emphasis placed upon certain aspects of their program was "too much," "too little," or "about right."

In general, these teachers felt that the amount of emphasis given to the physical sciences, natural sciences, behavorial science, philosophy and the arts, and to communication skills was "about right." However, in the field of philosophy and the arts, the reaction of the home economics teachers was divided between "too little" and "about right" emphasis.

In addition to data from these recent graduates, questionnaires were developed and sent to 401 other home economics teachers teaching in reimbursed vocational programs in Michigan, in 1961-62. Of the 515 questionnaires the total number returned was 472, for a 92 per cent return. All the home economics teacher educators were invited to participate and appraise the aspect of the program in which they were involved.

The reactions of these home economics teacher educators and home economics teachers of varying backgrounds, showed some agreement about the importance of the sociological-psychological, the art, and the scientific emphases in the preparation of home economics teachers. There were, however, differences in agreement as to the degree of emphases in the undergraduate program.

Eighty-six per cent of the teacher educators believed that "too little" emphasis was given to the sociological-psychological aspect.

In regard to art, 179 of the 472 teachers believed the present emphasis was "about right," but 92 felt there was "too little" emphasis. Seventy per cent of the teacher educators thought there was "too little emphasis;" 30 per cent, "about right."

All of the home economics teacher educators thought that the scientific emphasis was very important. Fourteen per cent thought there was "too much" emphasis, but 55 per cent thought there was "too little." Of the 472 home economics teachers, 152 thought the scientific emphasis was important, and 151 thought it was of "some importance." One hundred sixty eight home economics teachers thought that about the "right emphasis" was given to it.

The importance of problem solving and critical thining in home economics teacher preparation was generally accepted. Eighty-five per cent of the teacher educators and 32 per cent of the home economics teachers thought there was "too little" emphasis placed on it in the undergraduate program. Both groups believed that seminars were important for relating, synthesizing or integrating ideas.

Teacher educators believed that independent work by students in the undergraduate program aided in understanding families different from their own. Home economics teachers felt that the present emphasis was "about right" on independent work.

Reactions to Required Home Economics Courses

There was strong total acceptance or satisfaction with the amount of emphasis given to the groups of courses including: foods and nutrition, clothing and textiles, housing, home furnishings, household equipment and art and design. Very few thought there was "too little" emphasis, although some thought there was "too much" emphasis in certain areas.

The reaction, however, was different in the groups of courses including: family relations, marriage, child development, home management, consumer education, and family economics. While some felt the emphasis "about right," a substantial group indicated "too little" emphasis placed in certain areas. Very few felt there was "too much" emphasis.

Especially in the area of consumer education, all of the home economics teacher educators believed the consumer emphasis "very important," with three-fourths indicating "too little" emphasis given to it in the undergraduate program. Of the 472 home economics teachers, 284 checked that they believed the consumer emphasis very important, and 169 indicated it was given "too little" emphasis in the undergraduate program.

In the area of management, all of the home economics teacher educators and 242 of the 472 home economics teachers thought it was "very important."

There were differences as to degree of emphasis indicated. Fifty-five per cent of the teacher educators and 23 per cent of the teachers believed there was "too little" emphasis to the managerial-decision making process in the undergraduate program. Forty-five per cent of the teacher educators and 31 per cent of the teachers thought the degree of emphasis was "about right!" In checking the responses from the teachers who had recently graduated, there were twice as many who thought it was "about right" as those who thought there was "too little" emphasis.

In the area of family and family relationships, all of the home economics teacher educators thought the area was "very important," and that there was "too little" emphasis on the family in the teacher education program. Two hundred and fifty-seven of the 472 home economics teachers felt the area was "very ;important;" 193 thought there was "too little" emphasis given to the family focus, and 182 thought there should be more field or laboratory experiences with real families.

In the related area of child development, data were not secured from all of the home economists. However, data were available for a group of 73 home economics teachers who had recently completed their undergraduate work and had been teaching from one to three years. A study of these findings indicated that 66 per cent were in agreement that the amount of emphasis on child development was "about right;" twenty-three per cent thought there was "too little" emphasis.

Reaction to the Emphasis Given to Required Courses

In general, recent graduates who are now teaching believed that the amount of emphasis given to education courses including adolescent psychology, psychology of learning, social foundations, student teaching and seminars seemed to be "about right." However, about half of the group felt that the emphasis given to general methods of teaching and home economics methods was "too little," and the other half thought it was "about right." Few thought there was "too much" emphasis in any of the education courses.

Appraisal of the Total Program of Home Economics Education by Home Economics Teacher Educators

The home economics teacher educators indicated through interviews and questionnaires they believed:

1. It is very important that the students in home economics education are able to relate their learnings from one course to another and from one field to another.

2. The colleges at present attempt to help prospective home economics students relate their learnings to limited extent in:

   a. student teaching and home economics special methods courses.

   b. professional education courses and home economics education courses.

   c. home economics education courses and home economics courses.

They believe that less attempt is made to relate professional education courses and home economics education courses than is made in relating courses within home economics education, or relating home economics education and home economics courses.

3. The seminar appears to be an emerging method for securing synthesis; this type of course is in operation and is elective in three institutions. There is a certain amount of informal or incidental "relating" with little or no plan.

4. Prospective home economics teachers have the least difficulty in synthesizing their learnings in foods and nutrition.

   They have the most difficulty in relating management, consumer, and home furnishings. They also have great difficulty in relating or integrating units.

   In the professional field, they have least difficulty with the "mechanics" of teaching. They have most difficulty with: (1) "scope and sequence;" (2) meeting individual differences; and (3) the wise choice of methods.

Appraisal of Home Economics Special Methods Courses by Home Economics Teacher Educators

1. The bases upon which the special methods courses in home economics are built are

relatively different, with no clear-cut pattern throughout all institutions.

2. The home economics teacher educators report that the special methods course, as it is now planned and taught, provides insufficiently for time. The general reaction is that there is "room for improvement."

3. In special methods courses, students in the various institutions do not have extended working periods or laboratory work. One institution reported extended working periods. Students have independent projects such as resource units, bulletin boards, and observational adult classes.

4. Teacher educators reported providing considerable help with evaluating student progress and evaluating the effectiveness of the program and of teaching. Less emphasis is placed on evaluating outcomes of the program than on evaluating student progress.

The In-Service Program for Home Economics Teachers (Non-Credit)

The eight institutions and the State Department of Public Instruction reported four major categories of non-credit in-service education provided for home economics teachers in Michigan: non-credit professional study on the college campus and/or in the field; field or school visits to teachers and school administrators; consultant service on individual, group and state levels; printed materials.

Field consultant service was the most common type of non-credit in-service activity in which the institutions reported being involved. Three institutions had follow-up programs in which they visit their own graduates, usually first-year teachers. Only one institution reported professional study groups as an in-service activity. Michigan does not have a plan for preparing and distributing printed materials to teachers.

Appraisal of Non-Credit Service Activities by Teacher Educators

In appraisal of the non-credit in-service program for home economics teachers, the home conomics teacher educators felt they attempted to use the principles of in-service education to a relatively high degree but they reported only moderate development of their programs in their institutions. The home economics and family life education staff of the State Department of Public Instruction indicate only moderate use of principles of in-service education. Both groups were aware of certain well-developed and certain underdeveloped aspects of the program.

The teacher educators believed that the follow-up program does an effective job. Insufficient staff prevents institutions from developing and expanding this program. Limited encouragement in local schools for teachers to participate in experimental programs, experimental methods or in making studies is a weak spot. The schools appear favorable to change but are reluctant without approval and adequate leadership or guidance. Through the non-credit activities, home economics teachers have had opportunities to express their feelings about the adequacies and inadequacies of their college programs. However, changes are not necessarily followed by the college, even when certain weaknesses are persistently reported.

Teacher educators are questioning the field consultant service in the home economics teacher education program. Some believe it is too much of a "hit and miss" program. Some feel that tremendous amounts of time and energy are spent in these many activities and they question the results.

The State Curriculum Program in Home Economics and Family Life continues to be the major organized non-credit in-service activity for all teachers. Approximately 500 home economics teachers attend the Annual State Home Economics Teachers Conference each year. Many attend the Michigan Education Association regional meetings in the fall, in which there are special programs for home economics teachers. The reactions were sought of a group of teachers who met the criteria of attending two state conferences during 1960-62 and/or of attending one conference and being visited by a home economics consultant from the State Department of Public Instruction. Two-thirds of the group responding indicated that the State Conference was "very valuable" to them personally; one-third had participated in special committees and one-fourth had been on the program. Of the groups who had attended the fall regional meetings, one-third felt that they were "very valuable" and an equal number felt they were of "considerable value."

Of the teachers who had been visited by consultants from the State Department of Public Instruction and by college representatives, about hone-half of the group felt that the visits were "very valuable."

Only a few home economics teachers had participated in the past two years in non-credit research

projects. Of those who had participated, the reactions were not highly favorable in terms of values to them. No doubt most of these teachers had been asked to respond to questionnaires and did not feel very enthusiastic about them.

Appraisal of Non-Credit In-Service Activities by Teachers

In appraising the non-credit in-service activities, only those teachers who had met certain criteria were used in the sample. The one hundred and two homemaking teachers selected had attended the two Annual State Conferences in 1960 and 1961, or during 1960-61 and 1961-62, had been visited in their local schools by a homemaking and family consultant, State Department of Vocational Education, and had also attended one of the above state conferences. The questionnaire sent to these teachers contained many of the standard items as well as items relating to the teachers' experiences in the non-credit in-service program and its value to them. Eighty-nine per cent of the teachers in this group responded to the questionnaire.

The summary of the responses indicated that three-fourths had attended the annual state conference during 1960-61 and 1961-62. About one-fourth had been on the program and about 30 per cent had participated on special committees. Two-thirds of the group indicated that the conference was "very valuable" to them personally. About 73 per cent of the group had attended fall meetings and 36 per cent of them felt that it was of "considerable value." In general, the total number of responses in the "very valuable" and "considerable value" were approximately the same.

Responses from home economics teachers indicated that only a few (46) had participated in special meetings or conferences sponsored by the college. Among these, there was a relatively high level of satisfaction. A few (10-15) of the homemaking teachers had requested and had had conferences with consultants in the State Office and/or in one of the colleges. The level of satisfaction was equally divided between "very valuable" and "considerable value."

The In-Service Program for Home Economics Teachers (Credit Aspects)

The credit aspects of the in-service home economics teacher education program in Michigan are designed to provide opportunity for teachers to meet state certification requirements and to pursue study for advanced degrees.

Graduate programs for home economics teachers are offered at the following institutions in Michigan:

Central Michigan University
Eastern Michigan University
Northern Michigan University
Michigan State University
Wayne State University
Western Michigan University

Enrollments of Gradyate Students

Table 13 summarizes the enrollment of students in graduate courses in the participating institutions. The highest enrollment is in the summer program. There are certain questions about the data indicated in this table. For example, the number enrolled during the year should be full-time graduate students and the number enrolled in "other" should include students who take only one or two courses, in extension or in residence. These students might be full-time homemakers or full-time teachers. This part of the form seems to have been interpreted differently by the various institutions. Consequently, it figures or enrollments are to be comparable, there needs to be more uniformity in interpretation.

Master's Program

The master's candidate follows a program planned to develop competency and understanding in four areas through appropriate courses, individual study and close association with the faculty.

Area I - Home Economics Education. Typical areas of study include trends in home economics education; curriculum, evaluation, adult education and supervision in home economics; programs in home and family living; and equipping and furnishing home economics departments.

Area II - General Professional Education. The student usually selects courses from the social, philosophic, historic-comparative aspects of education and from educational psychology, guidance and personnel services.

Area III - Home Economics. The student selects courses offered by the college in home economics,

Table 13

Enrollment of Home Economics Education Graduate Students in the Eight Approved Michigan Institutions*

	1960-61			1959-60			1958-59			1957-58		
	During Year	In Summer	** Other	During Year	In Summer	Other	During Year	In Summer	Other	During Year	In Summer	Other
Albion College	0	0	0	0	0	0	0	0	0	0	0	0
Central Michigan University	0	7	12	0	0	12	0	0	22	0	0	21
Eastern Michigan University	0	0	0	0	0	0	3	9	0	5	5	0
Mercy College	0	0	0	0	0	4	--	--	--	--	--	--
Michigan State University	127	101	12	103	92	46	26	76	0	46	80	9
Northern Michigan University	0	0	0	0	9	0	10	0	0	0	10	0
Wayne State University	27	32	16	32	19	37	32	25	27	30	10	14
Western Michigan University	62	103	0	45	123	0	25	27	0	33	36	2
	216	243	40	180	243	99	96	137	49	114	141	46

* Data secured from "Enrollment and Placement of Graduates in Home Economics Education" submitted by consultants, State Department of Public Instruction, and further checked with the various institutions.

**, Students taking one or two courses.

such as foods and nutrition, textile and clothing, home management, family economics, family relations, child development, housing and home furnishings.

Area IV - Related Disciplines. The student selects courses from such areas as sociology, psychology, art, political science and others, according to her interest.

The specific study program within these four areas is developed by the candidate and her adviser. It takes into account her previous education, experience, general professional background, and future career goals.

Normally, all students are required to do advanced study in home economics curricula and evaluation, research methods, and independent research.

Doctoral Program

The doctoral programs are designed for the person who shows exceptional leadership ability in home economics education. Most candidates follow a program that prepares them for a position in the field of home economics teacher education or research.

All the candidate's undergraduate and graduate program preparation is considered in selecting the study program that will best fit her future career goals. Because of the flexibility permitted to meet individual needs, only a general outline is presented here.

The doctoral candidate plans the program with her advisory committee in three areas:

1. Specialized professional education (home economics).

2. General professional education.

3. Cognate area. An area of special interest to the candidate may be selected from the sciences and arts in Home Economics. The choice is made according to the type of professional leadership development desired.

Some Questions

1. Considering the 1959 data secured by the U. S. Office of Education on home economics in the public secondary schools, does the present emphasis in home economics courses at the secondary level in vocational and non-vocational programs in Michigan indicate that the program is effective in the light of present and predictable social-economic and technological change? Does the present emphasis indicate an educational lag?

2. To what extent and in what ways is the teacher education program responsible for the present emphasis in home economics courses at the local level? What are the other factors influencing the emphases in home economics courses? To what extent and in what ways are these facilitative or restrictive? What procedures would be most effective in determining the factors influencing the content of home economics programs in local schools? Would a home economics program theoretically geared to the present and predictable social-economic and technological changes be acceptable in Michigan communities?

3. In what ways and to what extent are the local school program, the pre-service, in-service, and research programs integrally related? What are the channels for communication between school administrators and home economics teacher educators? What would be the attitude of all groups toward more field work, independent study and cooperative projects involving home economics teachers, and prospective teachers in research and developmental projects at the local level?

4. Should greater emphasis be placed on the use of the research and scientific method in developing home economics programs and less emphasis on opinions and value judgments?

5. Is home economics intellectually stimulating and challenging at the secondary level, at the in-service, pre-service and graduate levels?

6. What is the best type of graduate program for a home economics teacher at the secondary level? Should it place emphasis on developing competence in the one or more aspects of home economics? On the professional education aspects? On broad cultural understandings and experiences?

7. Is there a need for a new type of in-service education? What is the place of consultant

service? Should there be more in-service opportunities for university credit and less emphasis on the non-credit? Should there be some new larger blocks of credit over a longer period of time in which teachers could be involved more deeply and extensively in projects in their own schools?

8. How might reimbursement be used to stimulate new programs, help in the development of needed materials, and support research related to educational gaps?

General Recommendations

1. That Michigan home economics teacher educators study and appraise the report and indicate implications which the findings have for the Michigan program and/or for further study.

2. That certain groups who have not been included in the study to date be contacted, for a more adequate description and appraisal of the home economics teacher education program in Michigan.

3. That there be a continuation of inter-institutional conferences of home economics and related faculty to review the findings and to move in the direction of significance.

4. That some planned approach be made to the study of the basic issues cited, and some attempt be made to involve groups who have varying points of view.

5. That special consideration be given to the continued and accelerated development of effective leadership and in-service programs involving both credit and non-credit aspects.

6. That high priority be given to the development of research competence throughout the home economics teacher education program.

7. That encouragement, guidance and financial assistance through vocational or other funds be given to support cooperative research and development projects involving local schools and the pre-service, in-service and graduate programs, especially in those areas of apparent "educational lag" and/or "unmet needs."

Part 4

Vocational Industrial Education

From the beginning, the preparation of teachers for vocational industrial education has been an enigma and the problem still remains, although some innovations may alleviate the situation. Shortly after the passage of the Smith-Hughes Act, it was anticipated that all vocational education teachers would receive their training through the conventional baccalaureate degree program. Successful programs were devised for agriculture and home economics teachers; however, obstacles were encountered with the vocational industrial teacher.

Requirements placed first priority on competency in the trade to be taught. In some instances a minimum of seven years was the criterion. This called for a mature individual who had already established himself and would be reluctant to give up a profitable existence to enter a four-year degree program at a financial loss. In addition, institutions were not equipped to offer technical content courses in quality or quantity that would enable the younger recruit to develop equivalent competency of actual work experience. As an outgrowth of these barriers, teachers were recruited from the trade area in which they were expected to teach. Professional training was provided after employment through itinerant instruction, extension courses, institutes, and workshops conducted by institutions of higher education. This practice in recruiting still prevails, although in recent years several attempts have been made to establish cooperative work study programs. As yet this pattern has not received wide acceptance.

Michigan State Plan for Vocational Education

The Guide to Reimbursed Vocational Education Programs describes the manner in which an individual may be certified to teach day trade and industrial preparatory classes:[2]

1. Teachers of trade practices with a baccalaureate degree in industrial education shall have had at least three years of work experience, one of which shall be at the journeyman

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[2]Michigan State Plan for Vocational Education, Bulletin No. 201, Division of Vocational Education, Department of Public Instruction, Lansing, Michigan, 1962.

level in the trade to be taught, or

2. Under emergency conditions officially recognized by the State Board, a combination of education and occupational experience acceptable to the State Board may be approved for special certification.

Qualifications of a lesser degree are required of related subjects, teachers, and trade and industrial coordinators.

It is obvious that the pathway to teaching is not as neatly defined as the conventional baccalureate programs for agriculture, business, and home economics teachers. Any study of vocational industrial teacher education must include teacher education in industrial arts, since an individual with a degree in industrial arts plus satisfactory work experience may teach in a vocational program. Four institutions prepare teachers in both of these phases of vocational industrial education; namely, Michigan State University, University of Michigan, Wayne State, and Western Michigan. Three others, Eastern Michigan University, Northern Michigan University, and Central Michigan University prepare industrial arts teachers primarily. At the time of this study, Ferris State College, another publicly supported institution in Michigan, was also designated to offer teacher education services in vocational industrial education.

Pre-Service Training

It will be noted from the data reported in Table 14 that students graduating with the B.S. degree in industrial arts are required to complete from 124 to 143 semester hours, depending upon the institutions in which they are enrolled. The major concentration required in industrial arts ranges from 30 to 45 semester hours. However, the one institution reporting 45 semester hours indicated that this included both a major and a minor in this field. In other words, if a student shows this field as a major, his minor would have to be in the same area.

Table 14

Number of Semester Hours Required to Complete the B.S. Degree with a Major in Industrial Arts

Subject	CMU	EMU	MSU	NMU	U of M	WSU	WMU
General Education	40	38	32	40	65	59	42
Major Specialty	40	30	39	30	35	40	45
Professional Education	26	22	20	22	20	29	28
Curriculum Requirement	*	***	7	4	*	*	7
Minor Concentration	20	20	20	20	*	20-24**	***
Electives	17	14	10	8	4	8-0	10
Total	143	124	128	124	124	135	132

* Included in general education
** Partially included in general education
*** Normally included in major

Professional education courses concerned specifically with the area of industrial arts are grouped with the general professional education work required for certification. The number of hours reported by the University of Michigan and Wayne State University in general education (liberal arts) normally includes a teaching minor. Eastern Michigan University includes all curricular requirements in the major concentration, while at Wayne State, Central Michigan, and the University of Michigan, all curricular requirements are included in the general education category.

Table 15 indicates that three Michigan institutions have curricula at the B.S. degree level in the field of vocational industrial teacher education. Each of these institutions allows some college credit in the major teaching area (or specialty) for occupational experience. This experience may be secured on a full-time basis, or through a cooperative arrangement with industry. The minor is included in the general education area at the University of Michigan and at Wayne State. Special curricular requirements in these institutions have also been included with general education. Vocational industrial professional education courses have been reported with other professional education work required for certification.

Table 15

The Vocational Industrial Education Curriculum in Michigan Teacher Education Institutions

Subject Area	U of M	WSU	WMU
1. General Education	69	59-69	42
2. Major Specialty	25	30-40	24
3. Professional Education	30	29	27
4. Curriculum Requirements	*	*	7
5. Minor Concentration	*	20-24*	26
6. Electives	9	4-0*	8
Total	133	128	134

* Included in general education

In-Service Education

New teachers in industrial education may pursue additional course work in all of the institutions surveyed for this report. Each of these universities offers on-campus work on an in-service basis in the evenings and Saturdays at both the undergraduate and graduate level. The universities also reported that one or more courses are offered during each semester on an extension basis. Likewise most of the institutions provide workshops, consultant services, and short conferences for teachers. Two or three institutions also report that they schedule television programs and educational publications geared to the needs of teachers of industrial arts and vocational industrial education subjects.

Central Michigan University furnishes a unique follow-up service for all first and second year teachers. Teachers are visited on the job on a regular annual basis. In addition, during the spring of each year, first year teachers are invited to a conference held on campus. (All departmental staff participate in the conferences).

Graduate Education

Data pertaining to the master's degree program in industrial education is reported in Table 16. Since Central, Eastern, and Northern do not offer work in vocational education, the master's at these institutions would naturally be in the area of industrial arts education. At the other institutions, the master's degree may be in industrial arts, vocational industrial education, or a combination of the two areas. Most of the institutions indicated that approximately two-thirds of the master's program may be in industrial arts, vocational industrial education, or cognate areas.

Three institutions, Michigan State, the University of Michigan, and Wayne State, prepare individuals at the doctoral level. Information received from these institutions indicates that the requirements for the doctorate are very much the same. Approximately one-half of this work is required in cognate areas. The remaining work is divided among education, languages, and a research study concerned with the industrial education field. In all three institutions, approximately three years of work is required beyond the B.S. or B.A. degree for the doctorate.

Table 16

The Master's Degree Curriculum in Industrial Education

Subject Area	CMU	EMU	MSU	NMU	U of M	WSU	WMU
Specialization	10-20	20	10-14	18	---	8-10	10-20
Professional Education	10	6	10-8	6	10	6-8	10
Electives	10-0	4	10-8	6	20*	14-16	10-0

* May be in cognate areas

Enrollments. The data reported in Table 17 show the number of students majoring in industrial education in Michigan teacher education institutions during the 1961-62 school year. No enrollment data were received from Wayne State University. The total number of students working on a major in this area ranged from 135 at Eastern Michigan University to 250 at Western Michigan University.

Table 17

Number of Students Majoring in Industrial Education 1961-62 School Year

Educational Level	CMU	EMU	MSU	NMU	U of M	WMU
Freshman	40	35	8	40	---	34
Sophomores	35	25	15	34	---	28
Juniors	30	15	35	25	---	48
Seniors	38	10	26	21	38*	40
Masters	25	50	101	26	101	100
Educa. Specialist	--	--	--	--	17	--
Doctorates	--	--	24	--	8	--
Totals	168	135	209	146	164	250

* Students reported include all four years

Although Table 17 does not show a breakdown in the enrollments between industrial arts and vocational education, data submitted by the institutions indicate that no students are enrolled for vocational subjects at Northern, Eastern, or Central. Of the enrollments shown at Western, 30 undergraduates and 20 students at the master's level are working in the field of vocational industrial education. The 101 master's degree candidates reported at the University of Michigan included both industrial arts and vocational industrial education majors. Of the enrollments reported by Michigan State, none at the undergraduate level are in vocational industrial education, while 32 at the master's and nine at the doctoral level are in the vocational field.

The graduates in industrial education in the school year 1961-62 are tabulated in Table 18. Graduates reported for the M.A. or M.S. degree level at Michigan, Michigan State, or Wayne State may have specialized either in industrial arts or in vocational industrial education or a combination of both, since some teachers in the public schools teach in both areas.

Appraisal of the Industrial Teacher Education Program

Each institution appraised its program through a self-evaluation form prepared by the task force subcommittee. Since the subcommittee was composed of one individual from each state institution con-

ducting industrial education teacher education, the collection of data was channeled through these representatives. Eight standards were developed:

1. Objectives and Organization of Industrial Teacher Education Units
2. Student Personnel Services
3. Preparation of Faculty
4. Teaching Load
5. Instructional Patterns
6. Laboratory Experience
7. Library
8. Physical Facilities

Table 18

Number of Graduates in Industrial Education 1961-62

Institution	B.S.	M.S.	Ed.D
Central Michigan University	37	7	--
Eastern Michigan University	12	5	--
Michigan State University	26	10	3
Northern Michigan University	24	1	--
University of Michigan	7	19	--
Wayne State University	41	11	2
Western Michigan University	20	7	--
Total	167	60	5

Specific items included under each of the eight standards totaled approximately two hundred. The results of the self-evaluation were compiled, analyzed, and summarized in a subcommittee report.

This final report will explain briefly each standard and conclusion drawn from the data. Additional information may be secured from the report entitled Vocational Teacher Education in Michigan.

I. Objectives and Organization of Industrial Teacher Education Units

This phase of the study concerned itself with two dimensions--objectives and organization. The former dealt with how well objectives have been formulated, their evaluation and the recognition and acceptance by the staff of certain student outcomes. The latter dealt primarily with administrative and supervisory procedures, faculty involvement in decision-making and relationships with other units in the college or university and community. A total of 46 items were rated on a 10-point scale by the participating institutions.

Conclusions Drawn from Data Submitted

1. The results of the evaluation indicate considerable satisfaction among the participating institutions. Approximately 85 per cent of the 46 items that were studied were rated "most aspects satisfactory." This rating represents a mean of seven or above on a 10-point scale.

2. Two items in the instrument were rated nine by the seven institutions. The items were

(1) "Cooperation with institution-wide services such a library, research bureau, placement office, and public relations office," and (2) "How effectively does the administrator of the unit keep open the lines of communications with his faculty?"

3. The two items receiving the lowest rating dealt with the utilization of follow-up studies and advisory committees. These items were rated 5 and 5.5 respectively. In other words, by comparison these items were low; even so, they were rated as "more aspects satisfactory than unsatisfactory."

4. In general, there seems to be less variance in policies governing organization of the departments among the seven institutions. Only one item showed a range of 1-10. This item dealt with "How satisfactory are the intra-unit organizational and administrative procedures for representation in policy-making matters?"

5. All seven institutions offering work on an in-service basis on their campuses reported that evening and Saturday courses are available to employed teachers both at the undergraduate and graduate level. They also reported that one or more courses are offered during each semester on an extension basis. Likewise, most of the institutions provided workshops, consultant services, and short conferences for teachers. Two or three institutions reported television programs and educational publications geared to the needs of teachers of industrial arts and vocational industrial education subjects.

6. All of the institutions reported that instruction in the organization and development of instructional materials for industrial education is included in their course offerings. Only two, the University of Michigan and Northern Michigan University, reported organized curriculum materials centers. The center at the University of Michigan is devoted primarily to cooperative education. The one at Northern Michigan University is of more general character, serving as the official repository for courses of study from all high schools in Michigan. Both institutions arrange for loan or sale of instructional materials to public schools throughout the state.

II. Student Personnel Services

The factors considered under "Student Personnel Services" included such matters as admissions, retention, counseling, placement and follow-up of students in vocational industrial teacher education curricula. Policies and practices governing administrative structure, faculty and student participation, and internal and external relationships were reviewed and evaluated.

Thirty-one items related to student personnel services were rated on a 10-point scale by each of the cooperating institutions.

Conclusions Drawn from Data Submitted

1. The over-all evaluation of the adequacy of the student personnel services in the seven participating institutions appears to be satisfactory. One institution, however, rated its student personnel services at two on a 10-point scale. The mean of all ratings was 6.7. Consequently, the rating would approach the appraisal of being satisfactory in most aspects.

2. An examination of the four general categories, (A) Selective Admission and Progressive Retention, (B) Educational Guidance and Counseling, (C) Placement Services, and (D) Follow-up Services, indicates that the first three are satisfactory and that the fourth needs improvement. The ratings were respectively 6.8, 7.3, 8.5, and 5.3.

3. The greatest variation in ratings on items within a category was in the evaluation of follow-up services. The range for most of these ratings was from 1-9 or 1-10, which would indicate considerable differences in services from ine institution to another.

4. The highest average rating in the four categories was 8.5 for (c) Placement Services. The highest rating given to an item was 8.8, given to two items in this category. These were concerned with the effectiveness in placing industrial education graduates and the relationship between the placement office and the industrial teacher education unit.

5. The lowest rating for any single item was 3.5 for the provisions made for the follow-up of drop-outs. The next lowest rating was a 3.7 for the item concerning the participation of the teaching staff in student recruitment for the vocational teacher education programs. The former item was incorporated in (D) Follow-up Services and the

latter was included in (A) Selective Admission and Progressive Retention.

6. For the most part, potential students in industrial education are admitted in a similar manner to students in other areas; namely, through the central admissions office. All students meet the same criteria for admission and in most cases are enrolled in a common core of general education subjects during the first two years of college. In several institutions, the record of the student's first two years is carefully evaluated by a teacher education committee, and the student is either accepted or rejected as a teacher candidate before any professional education work is taken.

   Few of the institutions reported any active program of recruitment except that which may be implied in offering a limited number of scholarships or visits by the industrial education staff to the public schools during career days or on other occasions.

III. Preparation of the Faculty

The evaluation of the faculty consisted of two major parts: (1) Education and Professional Experience and (2) Professional and Personal Activities. Ten specific items within these two categories were rated on a 10-point scale by the different institutions.

1. The extent of participation and involvement in matters directly related to industrial activities by the vocational industrial teacher educators in Michigan institutions seems to be rather small. Specifically, in answer to the item "To what extent does the faculty attend meetings sponsored by industrial groups?," the responses ranged from "all or nearly all aspects unsatisfactory" to "more aspects satisfactory than unsatisfactory." The median and mean of the responses (on a 10-point scale) were 2.5 and 2.6, respectively. With respect to the question "How satisfactorily do faculty members identify themselves with industrial groups?," the range was 3-7, with the median and mean being 4.5 and 4.6, respectively. These two items incidentally, were rated the lowest of all appearing in this phase of the evaluation.

2. Although a rather satisfactory rating was given to the over-all evaluation of educational and professional experiences of the faculty, the range of responses to two items within this category showed some concern for (1) the amount of "formal education of the industrial teacher educators" and (2) the amount of "work experience in industry."

3. The participation of the faculties in professional meetings and associations identifed with the field of industrial education is very high.

4. In general, the over-all evaluation of the total preparation of the industrial teacher education faculty was quite favorable.

IV. Teaching Load of Faculty

The opportunities any faculty has to do research, professional writing, participate in local, state, and national conferences and other similar activities, depends a great deal on the teaching load or responsibility of a faculty member. This phase of the evaluation was designed to determine what adjustments are made in the "teaching load" for matters essential to a functioning teacher education department.

Conclusions Drawn from Data Submitted

1. The over-all evaluation of the teaching load of the faculties indicated that "more aspects are satisfactory than unsatisfactory." The range, median, and mean for the over-all conditions was 1-8, 5 and 4.6 (on a 10-point scale), respectively.

2. The range of the responses for 75 per cent of the items was the maximum. In other words, the responses to 9 of the 12 items ranged from the lowest to the highest degree of satisfaction. This indicates a great difference of opinion with regard to the nature of the teaching load among the participating institutions.

3. The lowest mean of the group appeared for the adjustment to the teaching load for activities directly related to industry.

4. Provisions in the teaching load for "extension or off-campus classes" seem to be lacking in most of the institutions.

5. Provisions for research and writing also seem to be lacking.

V. Curriculum - Instructional Patterns

The curriculum is the device used to achieve educational objectives. It represents the nerve center of a teacher education program. Such matters as general or liberal education, specialization and professional education, the manner of involvement of interested parties, provisions for change and administration of the curriculum, are all important. This phase attempted to evaluate these important considerations. Fifteen items relating to curriculum were investigated.

Conclusions Drawn from Data Submitted

1. There is almost complete agreement among the several colleges and universities in the area of balance between general education, professional education and specialized education. The agreement extends to the amount of time spent in the several areas of study.

2. There is further agreement on major and minor preparation. The general practice, with one exception, was to concentrate the entire program of specialization in the area of industrial education.

3. Each university or college expressed a high degree of satisfaction with the curriculum as it is presented at its own institution.

VI. Professional Laboratory Experiences

This phase of the study concerned itself with the nature and organization of professional laboratory experiences. The situations under consideration are those other than formal "classroom" experiences. Laboratory experiences include, among other things, experiences in field, seminars familiarizing the prospective teacher with the actual teacher-learner relationship or environment. Practice teaching has long been recognized in this category, but other professional laboratory experience may precede or follow student teaching.

Conclusions Drawn from Data Submitted

1. The over-all rating of the professional laboratory experiences for industrial education is very satisfactory. No institution rated its professional laboratory experiences below seven; the mean of all ratings was eight.

2. An examination of the three general categories, (1) Nature of and Organization for Professional Experiences, (2) Student Teaching Experiences, and (3) Appraisal of Student Teachers After Completion of Professional Laboratory Experiences, reveals that all three categories are considered very satisfactory. The ratings were respectively 7.8, 8.3, and 7.7.

3. While group two, Student Teaching Experience, was rated the most satisfactory of the three under consideration, the greatest variance for any item within the groups appeared in this category. The range for effective use of community groups and agencies in providing out-of-school experiences for practicing teachers was from three to ten. The mean for this item was seven. This does, however, represent the lowest average rating for any single item.

4. The adequacy of frequency of conferences between the student teacher and the supervising teachers received the highest rating given to an item, specifically, 8.5.

5. While one institution considered that it most adequately provided for internship for prospective industrial education teachers, 50 per cent of the institutions responded "item not present in unit or no opinion or basis for a judgment." This may be an indication for some concern.

6. Little variation in average ratings is apparent for each of the categories or individual items, with Michigan industrial education units rating themselves very satisfactory in each category. Moreover, little variance in individual evaluations exists among the units reporting. Minor exceptions are noted.

7. All institutions reported that their student teaching programs were either organized on a full-time basis for at least eight weeks or on a part-time basis for a longer period. During this period, the apprentice teacher is assigned to a public high school for observation and practice in his specialization. The schools are selected on the basis of the quality of their programs and proximity to the campus. Generally, the institution pro-

vides a supervisor from the Industrial Education Department to visit the practicing teachers at least once during their teaching assignment.

VII. The Library

The evaluation of the library in the various institutions included such matters as administration, housing, extent of holdings, utilization and expenditures. A total of 17 specific items were evaluated.

Conclusions Drawn from Data Submitted

1. The over-all rating of the adequacy of library provisions for industrial education is very satisfactory. No institution rated its library provisions below seven on a 10-point scale, and the mean of all evaluations was 7.6. In other words, the library provisions for industrial education in our state institutions have been judged as satisfactory in most aspects.

2. Of the four general categories, (1) Library Organization and Housing, (2) Books, Periodcals and Other Collections, (3) Utilization and (4) Expenditures for Library Materials, the first two, although satisfactory, were evaluated below the latter two. The ratings were 6.6, 6.6, 6.8, and 7.6, respectively.

3. The greatest variation in the evaluations appeared in the categories (a) Library Organization and Housing and (b) Books, Periodicals, and Other Collections. Specifically, within the first category, dissatisfaction was expressed in such matters as accessibility of facilities, assemblage within the library, materials of special interest to industrial education students and the lack of special shelves, files, alcoves, and seminar rooms devoted to industrial education students.

   Regarding "library collection," a high degree of variance between institutions was again evidenced; particularly with the adequacy of the resources in (a) historical materials, (b) publications from industry, labor and trade associations, and (c) microfilms.

4. Although no single item in the evaluation instrument was judged unsatisfactory by either all or a majority of the institutions, the item receiving the lowest rating concerned the adequacy of the library's collection on "publications from industry, labor and trade associations." The next lowest rating involved the historical collections in the respective libraries.

5. Matters relating to relationships between library personnel, students and staff were rated very satisfactory. As a category, it was rated the highest of the four under consideration.

6. Provisions relating to expenditures for materials in industrial education seem to be satisfactory in all institutions.

VII. Physical Layout and Equipment

In a broad sense, the term "physical facilities" includes all the necessary rooms, laboratories, furniture, equipment, machines, tools, supplies, and materials necessary to achieve the objectives of the curriculum. The nature and extent of each would be determined largely by the curriculum objectives developed by the participating institutions. The committee believed that each institution had the inherent right to implement its own philosophy of education and therefore no evaluation should or could be made of those facilities directly governed by curriculum objectives. Specifically, no attempt was made to evaluate facilities directly related to any subject (such as auto mechanics, drafting, etc.,) in industrial education.

Conclusions Drawn From Data Submitted

1. The overall rating of the physical layout and equipment for the industrial education in Michigan institutions participating in the evaluation is satisfactory. However, considerable disparity is evident in the individual institutions reporting.

   Only one unit considered itself adequate in all respects, rating 10 for all items on a 10-point scale. The overall evaluation of the physical layout, equipment and supplies was rated at 6.4 although the mean of all items rated was 7.7.

2. With but one exception, the industrial education areas are not too inconveniently located in relation to the other institutional instruction units. All units are generally quite compact. The adequacy of the laboratories, with reference to size and number, was rated 6.0. This is an indication of some inadequacy and it was extremely apparent in two reporting units out of the seven.

3. Though not unanimous in their ratings, Michigan industrial education areas rate themselves as generally satisfactory in variety of visual aids and equipment and rooms for instruction by means of visual aids. Minor exceptions were noted.

4. Considerable variation exists in the adequacy of office space. Each unit rated itself differently in this respect. The rating 6.6, however, indicates more satisfactory aspects than unsatisfactory. The offices of the industrial education areas are in all instances readily accessible to the students, though improvements could be made in most situations.

   Waiting areas for students are not as satisfactory, rating at the midpoint 5 of the scale. Of all the physical features rated, office space allocation and student waiting areas appeared most critical. Though storage and filing facilities were adequate in three of the institutions reporting, the remaining units expressed concern as to the inadequacy.

5. Equipment inventory records are satisfactory in nearly all reporting institutions in most respects. Equipment service records are not as adequate. Considerable variance exists among the units, ranging from one extreme to the other on a ten-point scale.

6. The adequacy of equipment for instructional purposes in industrial education laboratories was more satisfactory than unsatisfactory in most institutions.

Conclusions and Recommendations

The overall evaluation of the industrial teacher education curricula in the seven participating institutions was favorable. On a ten-point scale, the overall median and mean for the eight standards was 7.0 and 7.1 respectively. In other words, the seven participating institutions believe that "most aspects (are) satisfactory." Table 19 indicates the overall evaluation for each standard in terms of range of responses, median and mean.

Table 19

Evaluation Results for the Eight Standards

	Standard	Range	Median	Mean
I.	Objectives and Orgnaization of Unit	7-9	8	7.9
II.	Student Personnel Services	2-9	7.5	6.7
III.	Preparation of Faculty	7-9	8	7.8
IV.	Teaching Load	1-8	5	4.6
V.	Instructional Patterns	7-10	8	8
VI.	Laboratory Experience	7-9	8	8
VII.	Library	7-9	7	7.6
VIII.	Physical Facilities	3-10	5	6.4
	Average		7.0	7.1

Table 19 shows that the three standards were rated below seven for the mean were: II, "Student Personnel Services;" IV, "Teaching Load of Faculty;" and VIII, "Physical Facilities." The greatest range in responses also occurred in these areas, indicating a considerable degree of variance between institutions.

With respect to the adequacy of the physical facilities, the adequacy of layout and equipment and recency of construction are closely related. As enrollments increase and equipment deteriorates with age and use, the discrepancy among institutions will be magnified. Only new equipment and

construction will alleviate those institutions currently hard pressed. Capital outlay for new equipment and construction, though dependent somewhat on needs, rests primarily upon legislative action at the state level. Whether funds for teacher education activities should be used for the purchase of heavy equipment and new construction is a moot question. On the other hand, present fiscal policies with respect to reimbursement of teacher education may be changed, which may indirectly alleviate the problem. Therefore, the committee recommends the proper authorities on the state level initiate action which will result in further study of this problem by a representative committee.

The comparatively low rating of Standard II, "Student Personnel Services," stems from two basic factors: (1) follow-up services and (2) recruitment. Among student personnel services, the greatest dissatisfaction concerned follow-up of students. Undoubtedly, this is due to a lack of personnel and finances in half of the institutions reporting. In view of the importance of follow-up study results on curriculum improvement, it appears that more attention should be given to this matter.

Little doubt can be raised regarding the importance of selecting qualified students for industrial teacher education--in fact, for any teacher education program. Nevertheless, the majority of our institutions consider present policies and practices governing recruitment of students to be very poor. Whether existing recruitment procedures exclude participation of staff or lack of staff precludes participation in recruitment procedures should be determined, and action which would result in better conditions initiated by the staff.

It was pointed out earlier that Standard IV, "Teaching Load," received the lowest rating among all aspects of the evaluation. The value of the mean was 4.6 on a 10 point scale. In other words, there are "more aspects unsatisfactory than satisfactory." The lack of follow-up studies, the absence of advisory committees, the little participation of teaching staff in student recruitment, the dissociation with the industrial complex, the lack of innovation, dissatisfaction in the use of community resources and the scarcity of time for research and writing may be direct results of heavy teaching loads in a number of our teacher training institutions. In view of the apparent effects of heavy teaching loads, the committee strongly recommends that funds for industrial teacher education be increased and disbursed among the teacher training institutions according to a formula which takes into consideration student enrollments. The committee believes that a more equitable distribution of funds will materially improve the equality of industrial teacher education programs in the state.

Conclusions

On the basis of the data presented in this report and information gained through personal interviews, the following conclusions may be drawn from this study:

1. The vocational teacher education program in Michigan is, in general, meeting the current needs of local communities as to the number of teachers trained, nature of curricula offered and other services normally expected of teacher education institutions.

2. Those responsible for vocational teacher education in Michigan's institutions of higher learning are keenly aware of the changes taking place in our homes, business, industry, and agricultural occupations. It is recognized that a program which is adequate today is likely to be inadequate for tomorrow.

3. Michigan's vocational teacher education program includes an extensive offering of professional vocational education courses at both the undergraduate and graduate levels. This, no doubt, results from the large number of institutions in some vocational fields approved to offer vocational work.

4. The supervision of student teachers, although generally adequate, is carried on in a variety of ways. Some institutions follow a visitation program which involves a minimum of two visits by a representative of the teacher education staff during the term or semester involved. Other institutions assign this responsibility to the general education supervisor who reviews the work of all practice teachers in that local school or area. Other institutions use a system of periodic reports by the supervising teacher of the local school.

5. The practice of reimbursement for services rendered by practice teaching centers varies with the college or university concerned, and to some extent with the vocational area involved. For example, in one particular vocational field, a local school may receive additional compensation for services as a practice teaching center, while a neighboring school district may not receive any additional reimbursement for similar services. In two vocational areas, the state provides no additional reimbursement to local schools providing practice teaching centers, while in two other vocational service areas, additional state aid is available.

6. In-service teacher education varies a great deal among the services and in different institutions. Some institutions attempt to visit new teachers at least once during the first year. Others have no organized program of in-service visitation. Interest was expressed by some vocational teacher education leaders in a five-year teacher education program, with the last year being devoted to an internship under the close supervision of the university.

   In-service course offerings at the graduate level appeared to be quite adequate in all areas of vocational education. Non-degree in-service teacher education, however, appeared to be quite inadequate. At present, this does not seem to be a serious problem in the field of agriculture. Short intensive teacher training courses given on an individual basis are needed to meet the needs of evening, apprentice, and other part-time instructors recruited from business and industry.

7. Follow-up work or consultative services appear to be adequate in some of the vocational services, while in other areas it has not been developed to meet current needs.

8. Although instructional materials centers have been established in some universities, much more needs to be done if Michigan is to be ready to meet the challenge of the technological age.

9. The research program in vocational education is not keeping pace with current needs. Research on an extensive basis has been carried out in only one or two vocational service areas. Most research concerning vocational education appears to be of the status study, normative survey type.

10. There appears to be a need for a more adequate system of coordinating the teacher education activities among the several institutions designated by the State Board for Vocational Teacher Education. Campus course offerings, consultative services, practice teaching centers, certification standards, and many other phases of the vocational teacher education program should be provided on a cooperative basis, according to an organized plan worked out with the institutions.

11. Considerable variance in statistical reporting of teacher training work is being required by different services of the State Department of Public Instruction. While some types of information must be different among the services, such items as enrollments, research studies, consultative services, etc., should be reported on a more uniform basis.

12. With the possible exception of the cooperative education program, vocational teachers at the pre-service and in-service levels are not being adequately prepared in the field of guidance and counseling. An earnest attempt should be made to develop an integrated and comprehensive program of guidance and counseling as part of the preparation of all vocational teachers.

Recommendations

In view of the conclusions outlined above and the need for an expanded and more effective program of vocational teacher education, it is recommended that:

1. The State Office of Vocational Education should have a clear understanding with each designated teacher education institution as to those activities for which the institutions is best prepared, and the completion of these activities should then be made the basis for reimbursement of vocational teacher education funds to that institution.

2. Vocational teacher education activities and practices should be reviewed and redefined under the leadership of the State Department of Public Instruction, Vocational Division, and a priority established for financial assistance to institutions for carrying out such activities.

3. Each service in the State Office of Vocational Education should, at the beginning of the school year, consult with its respective teacher education institutions concerning the activities each institution plans to carry out during the year and the percentage of time to be devoted to each activity.

4. Research of the experimental type should be encouraged and developed. Pilot and experimental programs in all vocational service areas are needed if vocational education is to meet the challenges in the years ahead.

5. More emphasis should be placed on vocational teacher education programs in providing assistance for teachers of adult, apprentice, and other part-time classes. Since the percentage of older people is increasing, new occupations are being created, and the amount of technical knowledge is growing rapidly in all areas, the need for adult classes is likely to expand greatly in the years ahead.

6. Counseling and guidance services should be a part of an effective program of vocational teacher education. Ways and means should be developed for better use of guidance services by vocational teachers at the local level and the necessary changes incorporated in current vocational teacher education programs.

CHAPTER VI

RESEARCH IN VOCATIONAL EDUCATION

Introduction

The temptation to side-step the appraisal of the vocational education research effort could occur easily, since research is one aspect of the total program that has received minimal attention. Thoughtful observers are agreed that the research performance in vocational education has not been impressive in the past. In an eye-opening position paper submitted to the President's Panel on Vocational Education, the Research Committee of the American Vocational Association presented a passionate plea for more attention to this area when it stated:

> "Obviously, vocational education in our contemporary and future occupational complex cannot play a meaningful role to our citizens and to our national security and defense amid the paucity of research which presently exists because of our inadequate resources and feeble efforts."[1]

Smith, in describing vocational education in several states, comments:

> "There is now developing for the first time a serious nationwide interest in research in vocational education and Michigan finds itself in the vanguard of the new research."[2]

Reasons for the dearth in research are manifold. First, vocational education as a phase of the formal education structure is a relative newcomer in educational ventures. If, as Traver states, educational research as it is known today is a relatively new branch of knowledge, with little more than a half century since Joseph Mayer Rice planned his researches to bring about educational reform, then it is understandable that systematic research in vocational education should be slow in arriving.[3]

Another deterrent to research productivity is the climate within the federal-state local vocational system, not necessarily conducive to elicit sympathy toward research. Although the basic acts (Smith-Hughes and George-Barden Acts) made provisions for conducting studies and investigations, these have never been exploited maximally.

The previously mentioned American Vocational Association Research Committee requested in its declaration the establishment of a National Institute of Occupational Research and a full-time administrative staff within the Division of Vocational and Technical Education in the U. S. Office of Education. The Committee was especially concerned when it said:

> "The traditional pattern of assignment of part-time specialists to research activities in the Division of Vocational Education is recognized as grossly inadequate in the judgment of the Committee."[4]

In the early stages of the development of vocational education, there was substantial direction and control from the federal level. Consequently, much of the promotion and stimulation was dependent upon the values held on the Federal level. The disparity of research activities in the various sections of agriculture, business, home economics, and trade and industrial education may be, in part, a reflection of the values held by the leadership personnel on the Federal level.

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[1]American Vocational Association Research Committee. Provisions for Vocational Education Research, 1962, p. 1.

[2]Smith, Harold T., Education and Training for the World of Work, A Vocational Education Program for the State of Michigan, The Upjohn Institute for Employment Research, 1963, p. 43.

[3]Travers, Robert M. W., An Introduction to Educational Research, The Macmillan Company, New York, 1958, p. 43.

[4]American Vocational Association Research Committee, op. cit., p. 3.

A third deterrent rests in the fact that, as in other aspects of education, there are two groups in vocational education with differing perceptions regarding research; those who conduct the research, and those who have final responsibility for decision-making in implementation. Sufficient evidence indicates that little penetration has been made in utilization of a research orientation in program development and improvement. Results of significant studies, scanty though they be, lie dormant and have not found their way into the mainstream of practice. The gulf between research and practice still remains wide. Long-range plans must be made, calling upon all avenues of communication to develop greater awareness of the importance of research in the conduct of the program. Other inhibiting factors include inadequate financial support, limited research competency, and lack of inducements.

The Michigan Concern for Research

Fortunately, the leadership in Michigan has long recognized the need for attention to research. Under the aegis of the Department of Public Instruction, a variety of research projects and demonstrations have been evidenced. For the past decade and a half, Michigan has been one of the few states that has employed a full-time research consultant. In addition, state consultants have either conducted research studies themselves or have been instrumental in encouraging universities and local communities to do so. Agenda in various conferences called by the Division of Vocational Education have made provision for the dissemination of research findings. As a result of the Michigan Vocational Education Evaluation Project, the future holds considerable promise for augmenting present effort. The proposal to the State Board of Control for an extension of the Project by the Executive Committee of MVEEP contained a statement which gave some clues to future development.

> This continuative effort is requested on the basis of the following six concerns:[5]
>
> 1. Continued application of interest and resources of Michigan's leadership in vocational education and related disciplines toward making the program of vocational education more efficient and effective. There are areas of need in vocational education research that MVEEP has only begun to meet.
>
> 2. Capitalization on the high degree of momentum and motivation in both interest and action in research which, if permitted to wane, might take years to recapture. The climate for sustained research is more favorable now than ever before for maximum impact. The investment of additional financial resources promises to yield a relatively greater impact than would be possible without the base already laid.
>
> 3. Final implementation of a concept of cooperative effort which in a period of three years has demonstrated the ability to marshall human and material resources to stimulate and promote research in vocational education.
>
> 4. Completion of certain sub-researches which were not written into the original design, but have emerged since the inception of the project. It would not only be tragic but wasteful to lose the effort expended due to the lack of small amounts of money.
>
> 5. Provision for the establishment of a framework to enable the systematic takeover of current and projected activities by the Department of Public Instruction and institutions of higher education. The Project has served its role as catalytic agent and a long-range, sustained program of research should be planned, organized, and executed.
>
> 6. Diffusion of the outcomes of the study at the chief point of focus, namely, local communities where vocational education programs are operative.

Further comments in the same proposal add a note of optimism regarding future outlook:

> Changing research climate in Michigan as it affects vocational education:
>
> a. There is increased awareness and sensitivity throughout the entire vocational education structure, including the state and local level and institutions of higher education, of the importance and role of research. This is the result, in large measure, of the opportunities provided for a large number of persons to participate in planning and executing various researches.

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[5] A Proposal-Request to the State Board of Control for Vocational Education for Continued Support of the Michigan Vocational Education Evaluation Project, Michigan Vocational Education Evaluation Project, (1962), p. 2.

b. Significant steps have been taken to mobilize and test resources and individuals to attack problems of vocational education. In other words, visibility has been given to research competence on the part of individuals as well as institutional resources.

c. Tangible evidence from a multitude of sources and disciplines has identified and brought together basic knowledge having an impact on vocational education. The notion that vocational education is an island unto itself is undergoing dissolution.

d. Productive efforts have been initiated to bring this knowledge not only to vocational educators, but others in a strategic position to use and incorporate it into the stream of affairs.

e. Overall, this attention to evaluative research has touched off a chain reaction of interests for accelerating the collection, dissemination, and application of available and emerging knowledge of vocational education.

Analysis of the Research Conducted

In order to determine the nature of research conducted in the past, a survey form was sent to the Department of Public Instruction and the several institutions of higher education in the state, inviting them to submit the vocational education researches which had been conducted under their auspices since 1937. The specific responses are reported in a more detailed document entitled Research in Vocational Education in Michigan. All institutions did not respond; however, it is safe to say that most of the research conducted was reported. A total of 325 research studies were submitted from eight institutions and the Department of Public Instruction: 304 of these studies were completed while 21 were reported to be in process. No attempt was made to ascertain research studies carried on in local communities. Table 1 shows the number of studies conducted and institutional output. Practically all research was produced in the larger universities. This is understandable since institutional objectives, availability of university-wide resources, graduate student assistance, and released time for faculty make research more feasible in the larger institution.

Table 1

Institutions Conducting Research

Institution	Number of Completed Studies	Percentage of Completed Studies	Number of Studies in Process
Michigan State University	214	70	10
University of Michigan	14	5	1
Wayne State University	34	11	--
Central Michigan University	--	--	1
Western Michigan University	8	3	--
Northern Michigan University	7	2	--
Eastern Michigan University	1	1	--
Ferris Institute	1	1	4
Michigan Department of Public Instruction	25	8	5
	304	100	21

Quantitatively, the bulk of the research as indicated in Table 2 has been produced by vocational agriculture and vocational home economics, with relatively little in business and trade and industrial education. A few studies cut across the subject matter lines.

A word of caution may be necessary in interpreting these data. These are merely numerical figures. No value judgments were made regarding the quality or the level of sophistication of these research studies.

Reasons for this quantitative disparity may be difficult to determine, in the case of agriculture and home economics, probable nudging from the federal level, regional research committees, nationwide studies, and a greater number of graduate students contributed to the output. In addition, in these fields university personnel have been given either full or part-time assignments for research.

The picture is somewhat different in business and trade and industrial education. Business education has never been accorded its rightful position in the vocational education family. In part, this stems from the fact that limitations of federal legislation and attendant interpretations have restricted the amount of funds available for training for both office and distributive occupations.

Reimbursement has been available for training in distributive education only since 1937. Occupational training for office work has never been accorded first class membership since financial support stems only from state funds. Fortunately, proposed new legislation on the federal level, if enacted, will aid in providing needed financial support. Meager funds in this area have precluded the possibility of more research.

Table 2

Studies Conducted in Various Fields, 1937-1962

Field	Number of Studies	Per cent
Home Economics	202	62.0
Agriculture	71	21.8
Trade and Industrial	21	6.7
General	16	4.9
Business	15	4.6
	325	100.0

In trade and industrial education, the situation has been somewhat different and difficult to diagnose. First of all, trade and industrial educators have not been research-oriented by background and training. In the past, research has never been a strong concern of personnel either on the national or state level and this is reflected in the program. Fortunately, this has changed in recent years. Token recognition on the national level, a noticeable absence of national studies, and non-existence of regional research committees lead one to conclude that the absence of research is due to lack of interest. In addition, fewer trade and industrial educators are prone to pursue advanced degrees in which a thesis or dissertation is required.

An analysis of research conducted since 1937 revealed that only 12 studies were completed from 1937 to 1949 inclusive. For a comparable period of time, 1950 to 1962 inclusive, 288 research studies were completed. This growth was attributed to additional interest in graduate study and a greater concern for research, particularly in agriculture and home economics. Table 3 indicates the growth by years.

Approximately eighty-one per cent of all research completed or in process was carried on by graduate students. Faculty in institutions of higher education contributed eleven per cent and state consultants eight per cent. (See Table 4).

Types of Research Conducted

Much of the research which has been conducted in Michigan attempts to describe current practice or to develop normative rules which summarize what is considered best prevailing practice. A few studies were experimental in nature. In general, there has been a tendency to favor utilitarian, short-range studies.

Needed Improvements in Research

In many ways current resources for vocational education research are unequal to the demand placed upon them by the scientific and technical orientation of society and the increasingly complex problems which attend this development. It is highly questionable whether future resources will ever be able to match the accelerated tempo of change which appears to be inevitable. Nevertheless, some affirmative action can take place which will affect the quantity and quality of research.

1. State-wide coordination of effort in manpower development research.

At the present time, a multiplicity of public and private agencies, too numerous to mention here, are addressing themselves to manpower problems. Much of this effort is carried on independently and on a fragmented basis, with little consideration for a united approach.

Table 3

Research Conducted According to Years, 1937-1963

Year	Number of Studies	Agriculture	Business	Home Economics	Trade and Industrial	General
1937	1	--	--	--	1	--
1938	--	--	--	--	--	--
1939	1	1	--	--	--	--
1940	--	--	--	--	--	--
1941	1	1	--	--	--	--
1942	1	1	--	--	--	--
1943	--	--	--	--	--	--
1944	1	1	--	--	--	--
1945	1	1	--	--	--	--
1946	1	1	--	--	--	--
1947	1	1	--	--	--	--
1948	2	2	--	--	--	--
1949	2	1	--	1	--	--
1950	10	1	1	8	--	--
1951	13	2	--	8	2	1
1952	12	5	--	7	--	--
1953	19	4	--	14	1	--
1954	24	7	1	16	--	--
1955	26	5	--	19	--	2
1956	18	4	--	12	--	2
1957	16	2	--	12	2	--
1958	31	5	--	23	2	1
1959	25	4	--	19	2	--
1960	28	6	2	18	2	--
1961	27	--	4	17	4	2
1962	39	8	6	23	1	1
1963	4	2	--	1	1	--
In Process	21	6	1	4	3	7
	325	71	15	202	21	16

Table 4

Individuals Conducting Research

Category	Number	Per cent
State Consultants	25	8
University Faculty	36	11
Graduate Students	264	81

Particularly is this true in research. The possible overlapping and duplication that may occur is apparent in the proposed stepped-up plans for research to be conducted by the Department of Labor.

> To guide our national efforts in training and manpower development, much additional information is needed also on problems and progress in this field. Some of this will be forthcoming over the next year or two as a by product of the training programs set up under the Manpower Act. For example, the Department of Labor--in cooperation with educational and training institutions and other interested government agencies and outside groups--plans to study such fundamental questions as the kinds of educational background workers must have to enter and successfully complete various types of training programs, the personal characteristics and other factors which influence trainability and willingness to undertake training and the effects of employers' hiring standards and restrictions on the success of training programs. In this research, it is planned to explore both the needs of young workers (for example, the types of training which are most meaningful for recent or potential school dropouts) and the special kinds of training courses and other programs needed to facilitate the retraining of older wokers.[6]

Although this research hints of cooperation with educational and training institutions, this does not necessarily insure that it will eventuate. Precious time and energy may be wasted through studies and investigations which may be identical or similar in nature. Fortunately, the necessity for coordination is recognized on the national, state, and local level. Secretary of Labor Wirtz, in testifying before the subcommittee on Manpower and Employment, had this to say:

> I believe that one of the most important contributions of the Manpower Development and Training Act in this field is to make possible the coordination and utilization of manpower research not only of the Labor Department and other Federal Government agencies, but also of state and local governments and of academic and other non-governmental organizations, in order to solve the Nation's manpower problems.[7]

The State Director of Vocational Education in Michigan has recently advocated the appointment of an advisory body, in a prospectus submitted to the office of the Governor.

> That a representative advisory committee or commission be appointed to serve the Michigan State Board of Control for Vocational Education, the Superintendent of Public Instruction, and the Division of Vocational Education in reviewing plans for future development of Vocational and Technical Education and to develop recommendations concerning them. Such a committee or commission could be financed from Vocational Teacher Education funds in a manner similar to the Michigan Evaluation Project if approved by the Michigan State Board of Control for Vocational Education.[8]

It may be assumed that, included in the responsibilities of such a body, research would be an important consideration.

2. Centralized programming of research within the vocational education system.

At the time that a request for supplementary funds was submitted to the State Board of Control for Vocational Education to extend the Michigan Vocational Education Evaluation Project, the State Director of Vocational Education presented a proposal for diverting $15,000 of teacher education appropriations to fund additional research projects. The State Board approved the proposal and the funds requested. Although the amount was relatively small, it brought with it a new emphasis in research and experimentation. One of the outcomes was to appoint a review committee to screen and approve proposals submitted. Although this practice is laudable, an additional function of this review committee, or a counterpart, should be centralized planning and programming of long-range, comprehensive research.

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[6]Manpower Report of the President, Superintendent of Documents, U. S. Government Printing Office, March 1963, pp. 113.

[7]Statement of Willard Wirtz, Secretary of Labor before the Sub-committee on Manpower and Employment, Senate Committee on Labor and Public Welfare on National Manpower and Employment Problems, May 20, 1963.

[8]R. M. Winger, "Vocational and Technical Education in Michigan," (Unpublished memorandum, Department of Public Instruction, Divi. of Voca. Education, Lansing, 1963), p. 5.

An analysis of past research indicated that most research was conducted by graduate students and faculty in institutions of higher education. Individual interest appeared to be the chief determinant of the problems to be investigated. Individual initiative and interest should not be discouraged; however, it would seem highly advantageous to program research based upon problems existing in local communities as well as on a state-wide basis. Vocational consultants within the Department of Public Instruction are in an excellent position to serve as problem-spotters in local communities. The coordinative agency suggested above, through its liaison with other agencies, would deal with the larger context. Problem identification based on a multiple approach could be systematically translated into a long-range research program. Within such a framework, university faculty as well as graduate students could select problems to be investigated, thereby contributing to a larger whole. National and regional studies conducted in vocational agriculture and home economics have demonstrated the advantages that can accrue as a result of planning research on a broader base.

The previous research analysis also revealed that relatively few studies provided for "across the board" considerations. Most studies dealt with the problems in the specific areas of agriculture, business, home economics, and trade and industrial education. The changing nature of occupations would suggest that a closer working relationship among the various vocational fields is imperative. Centralized planning could make provision for studies of a more general nature.

3. Increased research competency throughout the entire vocational education system.

Research competency has a multi-dimensional as well as a multi-level connotation. Competence is not restricted to the relative few who actively devote time to conducting research. Researchmindedness should characterize all professional people. This does not suggest that all individuals must be involved in highly sophisticated research as carried on by the scholar. In its most simple form it would imply the acceptance of the need for research and a willingness to utilize research results. Much research exists at the present time in vocational education and in the general field of education, not to speak of other disciplines. Excellent studies in human growth and development, learning theory and methodology have much to offer vocational educators, but somehow the results remain untouched.

A second phase of research competence deals with the interest and ability to conduct minor fact-finding and research studies. One of the recurring problems in this evaluative study has been the gaps and deficiencies in information about vocational education. Although excellent statistical data and records are available in the Department of Public Instruction regarding the reimbursable program, relatively little is known about the vocational education program in general. Information is scanty or non-existent about the characteristics of students who enroll in vocational education programs, the nature of the curricula, the dropout, and labor market behavior of graduates.

A third phase of research competence is concerned with the more sophisticated, rigorous type of research requiring highly specialized skills in problem identification, establishing challenging hypotheses, design construction, and statistical analysis. If research conducted in the past is any index, individuals responsible for the research are operating within a limited frame of reference. It was previously mentioned that most of the research was descriptive in nature, with several modest attempts of an experimental character. This limited approach seems universal in vocational education throughout the nation. The Research Committee of the American Vocational Education Association apparently has recognized this deficiency and has inaugurated a series of seminars to upgrade the quality of research. It would appear advantageous to plan and execute joint seminars on research for vocational teacher educators, state consultants, and research specialists on an in-state basis.

4. Additional financial resources required for research in vocational education.

Modest financial resources have been available to support research in the past. University research funds, allocations through the State Board of Control for Vocational Education, and several grants from governmental and philanthropic agencies constitute the main sources of revenue. The amounts received have been negligible when superimposed against needed research. Recently, the State Board of Control for Vocational Education has authorized the expenditure of $50,000 annually for three years beginning with the year ending June 30, 1963. This is a step in the right direction. Additional funds need to be secured. Foundation and governmental sources remain untapped due, in part, to lack of interest, insufficient time for proposal development, and the inability to design exciting proposals acceptable to sponsoring agencies. A careful study and analysis should be made of philanthropic and governmental agencies to identify those interested in providing grants for vocational education.

5. Research emphasis in undergraduate, graduate, and in-service education programs.

Many avenues exist on the undergraduate level to discuss findings of research, to pose challenging questions worthy of investigation, and to suggest readings that will bring about familiarity with research literature.

The Master's degree is the terminal formal education experience for most vocational education teachers. What has been suggested for the undergraduate has even greater applicability on the graduate level. More rigorous demands should be made on the graduate student. It is absurd to expect teachers to bring a research orientation to classroom teaching if they have not themselves had an exposure to courses in educational research and research seminars. Furthermore, it would seem advantageous to require each graduate student to pursue a challenging problem in order to develop some understanding of and skill in research technique. Involvement in projects under the leadership of competent senior investigators would provide rich experience not otherwise obtainable. Some obstacles may exist in the implementation of these suggestions; however, sacrifices must be made if improvement in research is expected.

In-service activities including consultative visits, program evaluation, state-wide conferences, workshops, institutes, and published material involving the application of tested research or the reporting of new research, are additional ways to encourage teachers and administrators in developing a research outlook.

CHAPTER VII

RECOMMENDATIONS

This final chapter presents recommendations that emerge from the various studies of the Michigan Vocational Education Evaluation Project. An attempt has been made to list the recommendations in order of priority, without any sequential consideration to the previous chapters. Because of present and future manpower problems in Michigan, the implementation of any or all of the recommendations should improve the vocational education enterprise.

1. It is recommended that the Legislature authorize the creation of a permanent state-wide commission to coordinate the efforts of governmental and private agencies now engaged in activities related to vocational education. It is further recommended that the counterpart of such a commission be established in local communities, particularly in the larger metropolitan centers. This commission should not be confused with the Governor's Committee on Manpower Development or local committees that have been operative in connection with the Manpower Development and Training Act, which may be of short duration.

2. It is recommended that if such a commission is created, it be adequately financed and staffed to conduct a long-range program of research of such nature that state-wide planning will minimize the lag between labor market demands and activities carried on by agencies responsible for vocational education.

3. It is recommended that the Legislature appropriate funds for vocational education programs, to alleviate the plight of minority groups who, because of lack of adequate preparation in vocational skills, are denied the opportunity for employment in the competitive labor market.

4. It is recommended that the Legislature take appropriate measures to eliminate the barriers to training and employment in business, industry, and other employers which preclude training and education through cooperative work-study programs for in-school youth.

5. It is recommended that the Legislature appropriate the necessary funds for the support of vocational education programs for out-of-school youth and adults who find doors to employment closed either because of lack of skills or obsolescence of skills brought about by technological change.

6. It is recommended that the Legislature, through appropriate action, facilitate the establishment of a network of area vocational schools for youth and adults who find it impossible to secure adequate vocational education in sparsely populated areas of the state, many of whom will find it necessary to migrate to larger metropolitan centers to secure employment. This may be accomplished in part by the utilization of existing facilities, expansion of community colleges, or the construction of new facilities.

7. It is recommended that the section of the final report of the Survey of Higher Education in Michigan (1958) dealing with the expansion of community colleges be reexamined and measures taken to speed up the implementation of these recommendations, since vocational technical education is an integral part of such expansion.

8. It is recommended that the existing community colleges be encouraged to expand their vocational-technical curricula through whatever means necessary, since labor market predictions and projections indicate the greatest expansion in job opportunities will occur at the professional and technical level.

9. It is recommended that the community colleges expedite the utilization of their facilities to provide vocational education for high school students who are unable to secure training in their schools.

10. It is recommended that strong adult counseling centers be established in connection with the Michigan Employment Security Commission and local public schools, to assist unemployed or underemployed youth and adults to have the advantage of a continuous program of guidance and counseling, since substantial numbers of individuals will be increasingly concerned with planning for sequential careers.

11. It is recommended that the Legislature pass permanent enabling legislation affecting the acceptance of federal funds for vocational education in order that utilization of such funds may be expedited.

12. It is recommended that the State Board of Control for Vocational Education, through appropriate channels, examine the present use of state and federal vocational education funds, since past practices and procedures have tended to freeze the vocational education program both in terms of emphasis and compartmentalization. It is further recommended that if additional state and federal funds are appropriated, these funds not be used to increase the rate of reimbursement for currently supported services until it is certain that more important or neglected services are adequately supported.

13. It is recommended that the Legislature appropriate additional funds for the support of vocational education programs for in-school youth and disadvantaged youngsters who, because of physical and/or mental deficiencies, are confronted with special problems in securing employment.

14. It is recommended that the Legislature make provision for matching through state funds those vocational education funds received from the federal government, as a minimal plan of financing vocational education services.

15. It is recommended that more and better articulation is necessary between public education and the users of the vocational education product; therefore, advisory committees composed of appropriate representation should be required at all levels of operation. These advisory committees are in addition to the commission suggested above. Furthermore, other means should be employed to effectuate better communication between school and community in matters affecting vocational education.

16. It is recommended that the Division of Vocational Education review its present organizational structure to determine the feasibility of at least a partial dissolution of the compartmentalization which now exists, in order to provide a more unified and integrated approach to vocational education. Occupational patterns are changing to the point that sharp lines of distinction in the fields of agriculture, business, homemaking, and trade and industrial education have become artificial. Consideration should be given to inclusion of a small corps of general vocational education consultants as well as specialists in each field.

17. It is recommended that the Department of Public Instruction continue the excellent practice of providing educational leadership through the Michigan Curriculum Program; however, more emphasis should be given to review of problems concerned with vocational education.

18. It is recommended that the Division of Vocational Education take the leadership in developing criteria that local communities may use as guide-lines in evaluating their vocational education curricula, to minimize obsolescence in light of labor market demands.

19. It is recommended that the Division of Vocational Education encourage local communities to establish long-range plans for program development and program improvement, based upon a total concept of vocational education rather than a segmented approach in each of the fields of vocational education.

20. It is recommended that the Division of Vocational Education marshall all resources available to strengthen local leadership in vocational education; this includes the position of director of vocational education as well as supervisory personnel responsible for separate fields of vocational education. It is further recommended that a long-range program of leadership development be instituted for local directors, and others responsible for the administrative and supervisory function in community colleges and intermediate school districts.

21. It is recommended that the Division of Vocational Education institute a system of reporting whereby information in enrollments, curricula, and other needed data be available in both reimbursable and non-reimbursable vocational education programs.

22. It is recommended that research in vocational education be strengthened both quantitatively and qualitatively through long-range programming, upgrading the competency of those conducting research, and allocation of funds supporting research.

23. It is recommended that local school districts regularize follow-up studies of employment-bound youth, dropouts in the vocational education program, and graduates of vocational education programs, to determine labor market behavior.

24. It is recommended that administrators who have the responsibility for the overall program of teacher education and faculty in vocational education departments come to some agreement regarding teacher education services for which reimbursable funds should be used, since antithetical positions are now evidenced.

25. It is recommended that the long-range program of self-study developed by the home economics teacher educators be continued and encouraged. Furthermore, teacher education services in other vocational fields should emulate the home economics teacher educators in this respect.

26. It is recommended that the practice of offering certain extension courses under joint arrangement by various institutions should be continued and, if possible, expanded to on-campus summer session courses and workshops to reduce the instructional cost stemming from small enrollments.

27. It is recommended that institutions of higher education in which two or more teacher education services are located examine course offerings and other services to determine the extent to which overlapping and duplication exists. Since enrollments in vocational education courses are comparatively low, such review may result in conservation of time, effort and cost.

28. It is recommended that a determined effort be made by vocational teacher education institutions in conjunction with the Division of Vocational Education, to uncover sources of revenue available to support research in addition to state and federal vocational education funds.

29. It is recommended that a study be made of the teacher education services required in the Upper Peninsula to determine whether or not geographical location precludes vocational education teachers in that area from receiving the quality and quantity of teacher education required.

30. It is recommended that the State Board of Control for Vocational Education discourage the approval of any institutions of higher education wishing to offer additional vocational teacher education services, until sufficient evidence is available that additional services are justified.

31. It is recommended that institutions of higher education which are experimenting with patterns of teacher preparation for vocational-technical teachers on a post-high school level be encouraged to arrive at the most satisfactory arrangement for the preparation of such teachers, since there is every indication that an increased number of teachers will be in demand.

Appendix A

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940[1], 1950[2], and 1960[3]

OCCUPATION	Alcona			Alger			Allegan			Alpena			Antrim		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	5.5	4.6	6.1	6.2	6.6	9.6	5.1	5.6	7.2	5.6	7.0	9.2	6.3	6.3	8.5
Farmers and farm managers	36.3	35.7	13.2	12.1	12.2	4.6	28.9	19.3	8.0	15.9	12.5	4.6	33.5	25.8	9.3
Managers, officials, and prop's, exc. farm	8.1	7.4	13.8	8.1	10.5	9.0	7.0	7.1	6.2	7.0	8.3	8.8	7.5	8.4	8.3
Clerical, sales, and kindred workers	5.2	7.3	14.0	9.4	9.5	14.8	8.6	11.4	15.3	11.5	16.1	17.7	5.2	10.2	12.9
Craftsmen, foremen, and kindred workers	6.8	9.5	12.7	8.8	10.0	11.5	9.2	14.0	15.3	12.3	14.8	16.3	5.6	11.0	13.5
Operatives and kindred workers	6.9	6.5	14.8	17.3	19.9	23.2	16.5	23.8	27.2	21.7	17.6	20.6	6.2	10.3	25.8
Private household workers	2.3	1.4	1.9	2.9	.9	2.1	3.3	1.8	2.2	2.8	1.5	2.8	3.4	1.5	3.1
Service workers, except private household	3.1	4.8	9.9	6.6	6.6	8.7	3.5	4.8	6.2	5.3	7.0	7.8	3.3	5.3	7.3
Farm laborers and foremen	19.3	12.8	1.6	4.7	5.2	4.7	12.1	6.6	3.8	9.0	5.5	1.2	16.1	12.8	4.1
Laborers, except farm and mine	5.2	6.5	8.7	22.9	17.3	11.3	4.9	4.8	5.6	8.0	8.3	8.6	12.1	7.2	5.2
Occupation not reported	1.5	3.6	3.4	.9	1.3	.5	1.0	1.0	3.0	.9	1.4	2.6	.7	1.1	2.0
Male	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	4.0	2.8	4.9	4.4	4.7	7.5	2.9	3.7	5.5	4.0	5.0	7.7	3.9	4.5	6.7
Farmers and farm managers	40.3	42.0	18.4	13.6	12.5	6.0	33.5	24.0	10.6	19.8	15.6	5.9	36.4	30.6	12.2
Managers, officials, and prop's, exc. farm	7.8	7.8	13.7	9.0	11.3	10.4	7.5	7.9	7.3	8.2	9.5	10.7	7.7	8.8	9.9
Clerical, sales, and kindred workers	3.7	4.6	8.8	6.9	5.5	8.6	5.8	6.9	8.8	9.0	10.5	10.5	4.0	6.2	7.5
Craftsmen, foremen, and kindred workers	7.5	11.3	18.0	10.4	12.7	15.8	10.7	17.4	20.7	14.9	18.6	21.7	6.4	13.0	18.3
Operatives and kindred workers	7.3	7.4	15.5	17.4	21.3	27.9	16.8	24.3	29.2	17.6	20.3	24.5	7.0	11.2	27.3
Private household workers	.1	.1	- -	.1	- -	- -	.1	.1	.1	.1	.1	.2	.1	- -	.4
Service workers, except private household	1.9	2.7	3.7	4.5	4.6	5.0	2.1	2.5	3.3	4.6	4.4	4.1	2.3	3.0	3.7
Farm laborers and foremen	21.0	10.6	1.6	5.6	5.3	2.7	14.2	6.8	4.2	11.1	6.2	1.2	18.2	12.8	5.2
Laborers, except farm and mine	5.9	7.6	12.0	27.1	20.9	15.7	5.6	5.7	7.5	10.0	10.5	11.6	13.7	8.7	7.0
Occupation not reported	.5	3.1	3.5	1.0	1.1	.5	.9	.8	2.8	.7	1.2	2.1	.5	1.1	1.7
Female	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*	100.0*
Professional, technical, and kindred workers	17.3	13.0	8.9	14.8	13.1	15.2	16.8	12.8	11.5	11.7	13.9	13.2	23.3	14.2	13.1
Farmers and farm managers	5.6	5.6	.7	5.1	10.9	.7	3.8	2.1	1.5	1.3	1.6	1.0	13.2	4.1	2.0
Managers, officials, and prop's, exc. farm	10.2	5.6	14.0	4.0	7.6	5.4	4.5	4.1	3.2	2.3	3.8	3.7	6.9	6.4	4.1
Clerical, sales, and kindred workers	16.8	20.4	26.5	21.6	23.2	31.2	23.4	27.8	31.6	21.2	36.0	37.0	14.0	28.3	26.7
Craftsmen, foremen, and kindred workers	1.0	1.2	- -	1.1	.9	- -	.9	1.3	1.5	2.4	1.2	1.7	.3	1.7	1.2
Operatives and kindred workers	3.6	1.9	13.1	16.8	15.4	11.1	15.1	21.8	22.3	37.4	8.1	10.0	1.0	6.4	21.8
Private household workers	18.3	7.4	6.4	16.3	3.9	7.7	20.7	7.8	7.5	13.1	6.7	9.8	26.7	8.0	10.2
Service workers, except private household	12.2	14.8	24.7	16.8	13.2	18.2	11.3	13.3	13.5	8.1	16.3	17.8	10.9	15.9	16.3
Farm laborers and foremen	6.1	23.1	1.6	.4	4.9	9.9	1.1	5.9	2.9	.9	9.8	1.3	1.8	12.9	1.4
Laborers, except farm and mine	- -	1.2	.9	2.4	5.2	- -	1.1	1.2	.7	.4	.5	.5	.8	.7	.4
Occupation not reported	9.1	5.9	3.2	.7	1.7	.4	1.4	1.8	3.7	1.4	2.1	4.0	2.1	1.4	2.8

Sources: [1]U.S. Bureau of the Census. U.S. Census of Population: 1940. Vol. II, Part 3, Characteristics of the Population, Michigan. U.S. Government Printing Office, Washington, D.C., 1942.

[2]U.S. Bureau of the Census. U.S. Census of Population: 1950. Vol. II, Part 22, Characteristics of the Population, Michigan. Chapter B., U.S. Government Printing Office, Washington, D.C., 1952.

[3]U.S. Bureau of the Census. U.S. Census of Population: 1960. General, Social and Economic Characteristics, Michigan. Final Report PC (1)-24C. U.S. Government Printing Office, Washington, D.C., 1962.

*Totals will not equal 100.0 because of rounding.

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Arenac			Baraga			Barry			Bay			Benzie		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.1	5.3	10.2	7.3	6.8	10.5	6.0	7.5	8.9	6.9	7.6	9.9	7.8	6.7	9.5
Farmers and farm managers	37.6	30.3	11.3	17.5	15.1	6.1	33.1	18.2	9.0	11.0	6.5	2.6	24.4	14.2	5.5
Managers, officials, and prop's, exc. farm	7.0	8.8	7.9	8.7	8.9	10.1	6.6	6.6	5.3	7.8	7.9	8.1	11.7	11.5	9.3
Clerical, sales, and kindred workers	5.7	8.6	12.6	8.1	9.8	13.0	9.2	13.8	16.3	14.8	18.4	19.0	8.9	11.7	14.1
Craftsmen, foremen, and kindred workers	5.7	9.9	13.8	15.4	10.4	17.1	11.5	14.8	15.1	13.9	16.4	17.8	10.0	12.1	14.7
Operatives and kindred workers	5.5	11.9	21.3	13.2	17.6	18.2	11.9	21.6	24.1	23.4	25.9	24.7	8.7	20.9	20.5
Private household workers	2.2	1.5	2.8	1.8	.6	.6	3.9	2.2	1.8	3.4	1.9	2.4	3.7	1.8	2.5
Service workers, except private household	4.6	7.2	8.5	5.8	6.6	11.0	3.4	4.3	6.7	6.1	7.6	8.5	6.4	8.4	10.9
Farm laborers and foremen	20.6	10.6	2.8	10.5	8.9	1.8	9.2	5.9	2.7	5.6	2.0	.7	9.5	5.2	3.5
Laborers, except farm and mine	5.0	4.9	5.8	11.0	14.6	6.4	4.0	3.9	4.9	6.0	5.0	3.7	8.0	6.1	6.6
Occupation not reported	.8	.9	2.9	.6	.7	5.2	1.1	1.1	5.1	1.2	.7	2.7	.7	1.5	2.9
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.0	3.2	6.9	4.5	4.4	7.1	3.8	5.4	7.2	4.7	5.8	8.4	4.9	3.7	7.0
Farmers and farm managers	42.4	35.9	14.8	19.0	17.0	7.6	39.0	23.1	12.1	13.9	8.6	3.5	28.5	17.0	7.0
Managers, officials, and prop's, exc. farm	6.9	9.3	9.0	8.6	9.1	11.4	7.1	7.5	6.6	9.1	9.3	10.0	12.4	12.4	11.5
Clerical, sales, and kindred workers	3.8	4.9	6.9	5.7	5.5	6.9	5.6	8.5	9.6	11.0	12.4	11.9	6.7	8.1	9.7
Craftsmen, foremen, and kindred workers	6.5	13.3	13.8	18.0	12.6	22.9	13.7	18.8	20.6	17.6	21.5	24.7	11.6	14.5	20.6
Operatives and kindred workers	6.0	13.9	26.7	15.2	20.9	23.4	12.0	22.0	26.0	24.0	27.7	28.3	10.1	23.2	20.1
Private household workers	- -	- -	.2	.1	.1	.3	.2	.1	.2	.1	.1	.1	.3	.1	- -
Service workers, except private household	2.6	3.8	3.6	4.1	4.9	6.0	2.1	2.7	3.0	4.9	5.4	5.0	4.5	6.5	7.5
Farm laborers and foremen	22.7	9.8	3.2	11.6	7.3	2.4	11.0	6.3	3.3	6.5	2.2	.7	11.2	5.7	4.6
Laborers, except farm and mine	5.7	6.0	7.7	12.9	17.6	8.6	4.7	4.9	6.7	7.2	6.3	5.0	9.4	7.2	9.2
Occupation not reported	.5	.9	2.5	.2	.7	3.5	.9	.8	4.8	1.0	.6	2.4	.6	1.5	2.6
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	19.6	13.5	20.2	23.0	17.8	20.8	16.8	14.3	12.8	14.3	12.8	13.6	23.1	18.8	15.5
Farmers and farm managers	5.1	8.0	1.0	9.4	6.3	1.7	3.8	1.8	1.6	1.3	.4	.4	3.2	2.7	2.1
Managers, officials, and prop's, exc. farm	7.5	7.2	4.5	9.4	7.8	6.1	4.2	3.9	2.3	3.4	3.7	3.6	10.1	7.7	4.0
Clerical, sales, and kindred workers	18.8	23.3	29.3	21.7	29.6	30.9	26.6	31.4	32.8	27.5	36.0	35.8	20.8	26.0	24.1
Craftsmen, foremen, and kindred workers	.5	.5	.4	.6	.5	- -	1.0	1.7	1.8	1.2	1.4	1.3	2.0	2.5	1.0
Operatives and kindred workers	2.7	4.1	5.5	2.3	2.0	2.8	11.9	20.5	19.4	21.0	20.8	15.9	1.6	11.7	21.3
Private household workers	16.9	7.0	10.7	11.7	3.3	1.7	22.2	9.2	5.8	14.5	7.1	8.1	21.4	8.6	8.2
Service workers, except private household	18.6	20.8	22.9	15.2	14.8	25.6	10.1	9.6	15.9	9.9	14.3	16.9	15.9	16.0	18.6
Farm laborers and foremen	7.0	13.8	1.6	4.2	16.3	- -	.5	4.6	1.2	2.6	1.3	.6	.6	3.1	1.0
Laborers, except farm and mine	.5	.6	- -	- -	.8	10.4	.6	.9	.5	2.2	1.0	.5	.3	1.5	.5
Occupation not reported	2.7	1.1	4.0	2.6	.8	- -	2.2	1.9	5.9	2.0	1.0	3.4	1.0	1.3	3.6

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Berrien			Branch			Calhoun			Cass			Charlevoix		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.8	6.9	9.8	5.2	6.7	6.8	7.5	8.3	10.5	5.1	5.6	6.8	6.2	7.5	9.3
Farmers and farm managers	12.7	7.3	3.9	27.1	18.1	8.3	7.7	4.3	2.3	27.4	15.0	6.0	28.4	17.2	5.5
Managers, officials, and prop's, exc. farm	8.3	7.8	7.1	7.8	7.9	7.2	8.0	8.0	7.9	7.7	6.6	6.5	8.8	9.6	9.3
Clerical, sales, and kindred workers	13.1	16.1	19.1	10.0	14.1	15.6	16.5	18.9	20.2	9.1	13.2	16.1	7.9	13.6	14.8
Craftsmen, foremen, and kindred workers	15.4	16.4	15.4	9.5	11.9	12.3	16.6	16.9	15.0	11.5	15.9	16.2	8.0	13.0	14.7
Operatives and kindred workers	20.0	26.0	24.2	16.9	20.5	23.2	19.9	24.1	22.1	11.2	23.9	25.7	11.2	15.4	22.3
Private household workers	3.0	1.6	2.3	3.7	2.2	3.4	3.7	2.0	2.0	3.5	1.8	2.0	3.6	2.6	3.5
Service workers, except private household	5.5	6.7	8.0	4.1	7.4	12.2	8.1	9.6	10.2	3.7	5.2	6.6	5.9	6.7	10.4
Farm laborers and foremen	7.8	5.1	3.1	10.0	5.6	3.0	3.4	1.9	1.1	12.3	5.3	3.6	10.4	5.6	2.1
Laborers, except farm and mine	7.2	5.0	4.3	4.2	3.7	4.2	7.0	5.0	4.1	6.8	5.7	4.3	8.5	7.9	5.3
Occupation not reported	1.1	1.1	2.7	1.4	1.8	3.7	1.7	1.1	4.6	1.7	1.8	6.3	1.1	1.0	2.7
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.4	5.7	9.3	3.3	4.4	4.7	5.3	6.6	9.3	3.2	4.0	5.3	4.0	4.9	8.0
Farmers and farm managers	15.5	9.4	4.9	33.2	24.1	12.0	10.1	6.1	3.4	31.9	19.0	7.8	3.2	21.1	7.7
Managers, officials, and prop's, exc. farm	9.5	9.3	9.1	8.4	9.2	9.2	9.5	9.7	10.0	8.0	7.6	8.0	9.2	10.1	11.7
Clerical, sales, and kindred workers	9.2	9.7	11.2	7.3	9.0	10.2	12.4	12.2	11.8	6.3	7.9	9.1	5.9	8.6	9.5
Craftsmen, foremen, and kindred workers	19.2	21.5	21.8	11.6	15.6	18.5	21.8	23.5	22.0	13.3	20.1	22.3	9.5	15.9	21.4
Operatives and kindred workers	19.7	27.3	27.1	15.3	20.9	24.6	20.2	24.5	24.6	10.8	24.3	27.5	12.0	18.1	22.9
Private household workers	.2	.1	.1	.1	.1	.2	.2	.1	.1	.3	.2	- -	- -	.5	.6
Service workers, except private household	3.9	4.6	4.6	2.5	4.5	6.8	6.1	7.2	6.8	2.3	3.5	4.0	4.1	4.2	6.7
Farm laborers and foremen	9.2	5.0	3.3	12.3	5.7	4.0	4.4	2.2	1.4	14.4	4.9	4.0	11.8	6.2	2.5
Laborers, except farm and mine	8.2	6.4	6.1	4.9	4.8	6.0	8.5	7.4	6.0	7.7	7.0	5.7	10.1	9.6	7.5
Occupation not reported	.9	.9	2.4	1.1	1.6	3.8	1.5	.6	4.5	1.8	1.4	6.3	1.0	.7	1.6
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	11.2	10.2	11.0	13.5	13.1	10.7	14.0	12.4	12.8	14.9	10.9	10.3	16.8	18.1	12.2
Farmers and farm managers	2.1	1.5	1.5	2.1	1.6	1.5	.6	.2	.2	3.0	1.5	1.3	8.1	1.5	.9
Managers, officials, and prop's, exc. farm	4.1	3.6	2.9	4.8	4.4	3.4	3.5	4.0	3.8	6.3	3.1	2.8	7.0	7.3	4.3
Clerical, sales, and kindred workers	27.7	34.1	36.3	21.2	28.1	25.6	28.5	34.3	36.5	23.8	31.0	33.2	18.2	33.4	26.1
Craftsmen, foremen, and kindred workers	1.2	2.0	1.4	1.1	1.6	.9	1.4	1.8	1.1	1.5	1.6	1.4	.7	1.0	.7
Operatives and kindred workers	21.0	22.0	17.9	23.7	19.6	20.7	18.9	23.3	17.4	13.6	22.7	21.4	7.5	4.3	21.1
Private household workers	13.5	5.7	7.0	18.4	7.8	9.4	13.9	6.2	5.6	20.9	7.4	6.9	21.5	11.3	9.6
Service workers, except private household	11.6	12.6	15.5	10.8	15.5	22.2	13.7	15.0	16.8	11.2	10.5	12.9	15.1	16.6	13.5
Farm laborers and foremen	2.8	5.5	2.6	.3	5.2	1.2	.5	.8	.6	1.1	6.4	2.6	3.6	3.4	1.2
Laborers, except farm and mine	3.1	1.2	.6	1.4	.7	.8	2.6	.6	.3	2.1	1.5	1.0	.2	1.1	.6
Occupation not reported	1.7	1.6	3.2	2.6	2.5	3.7	2.3	1.4	4.8	1.5	3.3	6.2	1.5	2.0	4.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Cheboygan			Chippewa			Clare			Clinton			Crawford		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.8	7.3	9.4	5.8	7.7	11.1	5.4	6.1	8.7	4.9	5.9	7.9	8.4	10.2	9.2
Farmers and farm managers	28.8	16.5	5.4	12.9	8.1	4.0	31.3	18.5	7.0	32.1	20.5	10.5	7.2	3.7	.5
Managers, officials, and prop's, exc. farm	9.3	10.9	13.9	9.3	9.3	11.6	8.7	10.0	9.4	6.4	6.3	5.7	16.9	14.0	12.9
Clerical, sales, and kindred workers	9.3	12.4	15.7	12.1	16.0	18.5	9.2	12.6	13.8	8.7	12.2	16.4	11.6	13.1	15.6
Craftsmen, foremen, and kindred workers	9.0	13.8	13.3	8.2	12.6	16.0	8.3	12.2	15.0	8.7	13.5	16.1	12.5	12.7	11.8
Operatives and kindred workers	12.1	14.3	15.3	14.5	20.3	14.5	11.2	19.6	23.3	11.7	22.8	21.6	14.8	15.8	17.6
Private household workers	2.7	1.5	3.4	3.5	1.5	3.3	3.2	1.3	2.7	3.7	2.0	2.1	3.8	2.0	3.6
Service workers, except private household	5.5	9.6	11.0	15.5	9.0	9.9	4.9	6.6	8.9	3.7	4.9	6.7	13.5	11.0	13.2
Farm laborers and foremen	10.0	5.6	1.8	4.8	3.8	1.7	12.3	7.3	1.5	13.9	5.6	3.5	2.4	1.4	- -
Laborers, except farm and mine	6.7	6.4	5.5	12.2	10.5	5.6	4.0	4.5	4.5	5.3	4.6	3.4	7.7	13.4	11.6
Occupation not reported	.8	1.7	5.3	1.3	1.1	3.8	1.5	1.4	5.0	1.0	1.7	6.2	1.3	2.7	4.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.2	4.8	7.8	3.8	5.1	9.3	3.5	4.7	9.0	2.5	3.6	5.7	6.2	7.5	8.1
Farmers and farm managers	32.9	20.6	7.1	15.1	10.4	5.0	36.3	23.8	9.8	37.4	25.4	14.1	9.3	4.8	.8
Managers, officials, and prop's, exc. farm	9.9	11.5	17.4	10.0	10.5	13.9	8.5	11.2	11.3	6.7	7.0	7.0	17.6	15.7	15.5
Clerical, sales, and kindred workers	7.0	8.6	10.7	8.6	9.5	10.2	6.6	7.7	8.0	5.9	7.1	8.6	9.4	9.8	10.6
Craftsmen, foremen, and kindred workers	10.8	17.1	18.3	9.7	16.1	22.3	9.7	15.7	19.9	10.1	16.5	21.6	16.0	16.1	17.3
Operatives and kinderd workers	10.9	14.5	18.5	15.6	23.1	19.4	12.9	19.4	25.1	12.5	24.0	25.3	16.5	18.1	21.2
Private household workers	- -	.2	.6	.1	.1	.1	.3	.1	.2	.1	.1	.1	.4	.2	- -
Service workers, except private household	3.7	6.6	5.4	15.9	6.1	7.0	2.3	3.4	4.2	2.1	2.7	3.4	9.9	7.4	5.4
Farm laborers and foremen	11.9	6.5	2.2	5.7	4.5	1.9	14.3	7.5	1.9	15.9	6.4	4.1	3.2	1.4	- -
Laborers, except farm and mine	7.9	8.1	7.6	14.5	13.5	8.0	4.5	5.7	6.4	6.1	5.5	4.5	10.2	16.5	17.1
Occupation not reported	.7	1.6	4.4	1.0	1.1	3.0	1.0	.9	4.0	.8	1.7	5.7	1.3	2.5	4.1
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	13.3	16.6	13.4	15.1	16.3	15.5	16.3	10.9	7.9	18.8	14.9	13.6	15.2	19.2	11.2
Farmers and farm managers	9.5	1.2	.9	2.5	.7	1.5	2.6	1.4	- -	1.7	1.2	1.3	.5	- -	- -
Managers, officials, and prop's, exc. farm	6.4	8.8	4.8	6.0	5.5	6.1	9.7	6.2	4.8	4.7	3.8	2.3	14.8	8.5	8.2
Clerical, sales, and kindred workers	20.2	26.6	28.6	28.4	37.3	38.3	24.2	28.4	27.9	24.6	32.4	36.0	18.4	24.4	24.9
Craftsmen, foremen, and kindred workers	.6	1.7	.3	1.4	1.0	.9	.5	.9	3.3	1.1	1.8	2.2	1.4	1.1	1.4
Operatives and kindred workers	18.1	13.6	7.0	9.3	11.4	2.9	1.5	20.3	18.9	7.1	17.9	11.9	9.2	8.1	10.9
Private household workers	15.3	6.2	10.8	19.4	6.1	10.9	20.4	5.1	8.9	24.3	9.8	7.1	14.3	8.1	10.3
Service workers, except private household	13.6	20.7	25.5	13.5	18.2	16.9	18.6	16.6	20.4	12.7	13.3	15.1	24.9	23.3	27.7
Farm laborers and foremen	1.1	2.1	.9	.4	1.6	1.3	.8	6.6	.5	2.1	2.2	2.3	- -	1.1	- -
Laborers, except farm and mine	.6	.2	- -	1.2	.7	- -	1.3	.6	- -	1.0	.9	.7	- -	3.0	1.4
Occupation not reported	1.1	2.1	7.9	2.8	1.2	5.7	4.1	3.1	7.5	2.1	1.8	7.4	1.4	3.3	4.0

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Delta			Dickinson			Eaton			Emmet			Genesee		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers...	6.7	7.1	8.2	8.2	8.3	10.6	6.1	7.0	8.4	8.0	9.0	10.6	6.2	6.7	9.3
Farmers and farm managers	9.7	9.5	4.6	5.1	5.1	1.5	25.1	14.9	7.3	18.4	11.7	4.4	2.9	1.6	.7
Managers, officials, and prop's, exc. farm	10.3	9.4	10.4	10.6	8.8	9.9	7.0	6.6	6.4	10.8	10.2	12.2	6.2	5.9	5.7
Clerical, sales, and kindred workers	13.8	16.4	19.1	14.9	18.4	18.6	11.1	15.2	20.0	12.8	16.5	19.2	15.6	17.2	18.4
Craftsmen, foremen, and kindred workers	11.8	14.2	13.4	15.6	15.2	16.1	10.7	14.9	16.5	10.2	14.0	12.9	16.4	17.0	17.2
Operatives and kindred workers	13.0	18.0	21.2	23.6	23.2	20.4	16.6	23.6	22.3	11.3	15.9	13.1	31.7	37.5	31.2
Private household workers	4.2	1.1	2.3	3.0	.9	1.6	3.7	1.8	2.8	4.6	3.1	4.9	3.5	1.7	2.1
Service workers, except private household	6.4	7.0	10.3	6.3	7.4	10.1	3.9	5.2	7.3	7.1	8.9	12.3	6.4	6.8	7.2
Farm laborers and foremen	5.5	3.6	1.5	2.4	1.8	.8	8.9	4.8	2.2	8.6	3.5	1.5	1.9	.6	.4
Laborers, except farm and mine	16.9	12.3	6.8	9.3	10.0	6.0	5.2	4.0	3.7	7.1	6.0	6.3	8.3	3.8	3.8
Occupation not reported	1.8	1.4	2.2	.9	.9	4.3	1.8	1.9	3.1	1.2	1.2	2.6	.9	1.3	4.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers...	4.3	5.0	6.1	5.2	5.8	8.1	3.9	5.1	6.8	4.5	5.7	8.9	4.2	5.2	7.8
Farmers and farm managers	11.3	11.0	5.8	6.0	6.2	2.0	30.0	18.9	10.2	22.5	15.8	6.5	3.6	2.0	.9
Managers, officials, and prop's, exc. farm	11.5	10.9	12.7	11.5	10.0	12.8	7.7	7.4	7.9	12.6	11.9	15.1	7.0	6.6	6.9
Clerical, sales, and kindred workers	10.2	10.2	12.5	10.4	22.2	11.7	7.7	9.4	10.8	9.2	10.2	11.8	11.5	11.2	11.3
Craftsmen, foremen, and kindred workers	14.4	17.9	18.2	18.9	18.9	22.4	12.4	18.7	22.8	12.8	18.9	19.5	20.5	22.0	23.9
Operatives and kindred workers	15.2	20.6	26.6	27.9	26.2	24.4	17.6	25.7	26.4	13.0	19.0	18.0	35.5	41.9	35.2
Private household workers	.0	.1	.2	.1	.0	.1	.1	.0	.1	.2	.4	.5	.1	.1	.1
Service workers, except private household	4.2	4.6	5.2	4.7	5.6	5.7	2.6	3.3	4.2	4.2	4.9	5.6	4.7	4.6	4.4
Farm laborers and foremen	6.6	3.2	1.5	3.2	2.0	.9	10.6	5 2	2.9	10.6	4.1	2.3	2.3	.7	.5
Laborers, except farm and mine	20.7	15.4	9.4	11.2	12.4	8.5	6.1	5.0	4.9	9.1	8.1	9.5	9.8	4.8	5.2
Occupation not reported	1.5	1.1	1.7	.8	.8	3.3	1.4	1.3	3.0	1.2	1.0	2.2	.8	.8	3.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers...	17.1	14.9	13.6	21.6	18.4	16.3	16.5	13.7	12.2	20.7	17.7	13.8	13.8	11.5	12.9
Farmers and farm managers	2.4	3.8	1.5	.9	.9	.4	2.0	1.7	.7	3.7	.8	.4	.3	.2	.2
Managers, officials, and prop's, exc. farm	5.1	4.0	4.5	6.8	4.2	3.4	3.6	3.8	3.1	4.2	5.5	6.8	3.2	3.5	2.7
Clerical, sales, and kindred workers	29.1	39.6	35.9	35.3	43.0	33.9	27.1	34.6	41.0	25.8	33.7	33.0	30.8	36.0	35.8
Craftsmen, foremen, and kindred workers	.7	.6	1.1	.4	.6	1.8	2.6	2.3	1.9	.6	.9	.4	1.2	1.3	.8
Operatives and kindred workers	3.6	8.2	7.3	3.4	11.3	11.6	11.9	16.6	12.9	5.0	7.5	4.0	17.6	23.7	21.3
Private household workers	21.9	4.9	7.8	16.3	4.5	5.1	21.0	7.7	9.1	20.5	10.5	13.2	10.1	6.6	7.2
Service workers, except private household	15.6	16.2	23.2	13.3	14.3	9.7	10.2	11.6	14.2	17.4	19.6	24.8	12.8	13.6	14.1
Farm laborers and foremen	1.0	4.8	1.4	.6	1.0	.6	.9	3.5	.6	1.0	1.8	- -	.3	.3	.1
Laborers, except farm and mine	.5	.5	.2	.2	.6	.5	.8	.6	1.0	.1	.3	.2	2.8	.5	.5
Occupation not reported	3.1	2.5	3.4	1.1	1.2	6.6	3.4	3.9	3.4	1.1	1.6	3.3	1.1	2.8	4.4

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Gladwin			Gogebic			Grand Traverse			Gratiot			Hillsdale		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.2	6.6	9.4	8.2	7.9	8.8	9.1	10.1	13.4	6.2	7.0	9.5	5.8	6.8	8.5
Farmers and farm managers	40.6	28.8	12.1	3.5	2.3	.9	18.0	9.5	4.4	31.3	22.8	10.3	32.5	29.5	14.5
Managers, officials, and prop's, exc. farm	7.2	6.8	9.7	9.3	8.5	7.4	9.4	10.3	9.5	7.9	8.2	7.0	7.6	6.2	6.0
Clerical, sales, and kindred workers	5.8	10.0	13.8	13.7	13.8	16.8	14.9	18.8	20.3	10.4	14.0	17.9	8.6	13.8	13.3
Craftsmen, foremen, and kindred workers	9.2	12.2	13.8	13.6	15.5	14.2	10.8	13.6	12.1	8.2	12.2	12.4	9.9	11.8	14.2
Operatives and kindred workers	7.7	12.8	18.1	28.7	33.3	33.4	11.4	13.5	15.9	9.8	16.1	23.3	10.9	18.7	24.7
Private household workers	2.2	1.3	3.6	2.3	1.0	1.3	4.7	1.8	2.2	3.4	1.9	3.2	3.2	2.0	2.6
Service workers, except private household	2.6	5.0	7.6	8.4	7.9	9.8	8.7	12.2	14.2	4.3	5.6	8.8	3.6	6.0	8.2
Farm laborers and foremen	14.9	10.5	5.7	1.2	1.4	.4	7.3	4.2	2.0	12.3	6.9	2.5	11.9	- -	- -
Laborers, except farm and mine	3.9	4.7	4.0	10.3	7.3	4.2	5.0	3.7	2.8	4.6	4.3	3.2	4.8	3.4	3.8
Occupation not reported	.7	1.2	2.2	.7	1.0	2.9	.7	2.3	3.0	1.6	1.0	1.9	1.2	20.0	4.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	4.5	8.4	5.5	5.5	6.8	5.5	7.1	11.1	3.8	4.7	7.2	3.4	4.5	6.3
Farmers and farm managers	44.9	34.4	15.7	3.8	2.6	1.2	22.9	13.0	6.3	36.9	28.3	14.6	38.1	35.4	19.0
Managers, officials, and prop's, exc. farm	7.0	7.2	10.1	10.1	9.4	8.8	11.4	12.5	12.9	8.6	9.2	8.8	8.1	6.9	7.1
Clerical, sales, and kindred workers	3.8	5.5	7.1	9.4	8.2	9.0	11.1	12.8	13.4	6.9	8.0	9.6	5.9	8.6	7.5
Craftsmen, foremen, and kindred workers	10.2	14.8	18.3	16.3	18.9	18.8	14.0	18.7	18.6	9.6	15.1	17.4	11.6	14.4	19.3
Operatives and kindred workers	8.4	14.9	23.2	33.9	38.4	42.1	11.6	16.9	18.0	10.9	18.4	27.3	10.3	20.4	27.7
Private household workers	- -	.1	- -	.1	.1	.1	.3	.1	.1	.1	.1	.1	.1	.1	.1
Service workers, except private household	1.1	2.6	3.4	6.6	6.0	5.2	6.5	8.1	9.8	2.7	3.1	5.4	2.1	3.6	3.8
Farm laborers and foremen	16.6	9.4	6.3	1.4	1.2	.5	9.6	5.7	3.1	14.1	7.0	3.3	13.9	- -	- -
Laborers, except farm and mine	4.0	5.7	5.2	12.3	8.8	5.4	6.4	5.0	4.3	15.4	5.3	4.4	5.3	4.1	5.2
Occupation not reported	.6	1.0	2.3	.6	.8	2.1	.7	2.1	2.4	1.3	.8	2.0	1.0	1.7	4.1
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	20.2	16.1	12.4	21.5	18.1	14.4	19.9	17.4	17.5	19.0	15.7	14.9	18.1	15.3	14.1
Farmers and farm managers	5.7	4.3	1.6	2.4	1.0	- -	3.1	1.1	.9	2.3	2.0	.5	4.8	6.6	3.1
Managers, officials, and prop's, exc. farm	8.3	5.2	8.7	5.5	4.7	3.6	3.3	5.0	3.5	4.0	4.5	2.8	4.6	3.4	3.2
Clerical, sales, and kindred workers	22.7	30.1	33.2	35.1	37.4	38.0	26.4	32.9	32.6	28.7	37.0	36.9	22.3	33.7	27.9
Craftsmen, foremen, and kindred workers	1.0	.7	.6	.3	1.0	1.7	1.2	1.0	.3	.9	1.2	1.2	1.3	1.5	1.3
Operatives and kindred workers	2.3	3.9	3.5	2.5	11.5	10.1	10.9	9.9	12.2	5.8	7.2	14.0	14.1	11.9	17.4
Private household workers	20.3	6.3	14.0	13.1	4.9	4.7	17.7	6.1	6.4	20.6	8.8	10.3	19.2	8.9	9.0
Service workers, except private household	14.3	16.0	19.6	17.5	16.4	22.0	15.6	22.3	22.1	12.7	15.2	16.5	11.3	15.0	19.4
Farm laborers and foremen	1.0	15.1	4.0	.6	2.3	- -	.4	.7	.2	2.5	6.3	.7	- -	- -	- -
Laborers, except farm and mine	2.3	.4	.5	.3	.8	.8	.7	.5	.1	.4	.5	.4	2.1	.7	.2
Occupation not reported	1.7	2.0	1.9	1.2	1.9	4.8	.8	2.9	4.0	3.0	1.5	1.7	2.4	3.1	4.4

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Houghton % distribution			Huron % distribution			Ingham % distribution			Ionia % distribution			Iosco % distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	8.3	9.4	12.7	4.6	5.6	8.3	9.9	12.9	15.5	6.9	6.1	8.1	6.5	6.7	10.8
Farmers and farm managers	8.2	7.5	3.8	36.7	31.5	22.6	5.0	2.9	1.5	24.2	16.1	8.0	23.9	15.2	6.3
Managers, officials, and prop's, exc. farm	8.6	9.1	7.7	6.4	7.1	6.9	8.8	6.6	7.8	7.7	6.8	6.9	11.8	13.6	14.4
Clerical, sales, and kindred workers	14.3	15.4	16.7	6.5	9.6	13.5	22.9	25.2	26.0	9.3	13.2	13.8	9.2	11.7	15.5
Craftsmen, foremen, and kindred workers	12.0	14.0	15.7	5.0	9.7	12.3	13.8	14.2	12.9	9.6	11.9	12.2	9.8	15.1	13.1
Operatives and kindred workers	27.9	22.0	19.6	6.6	11.3	15.7	19.6	20.8	15.6	16.2	25.4	26.9	9.8	15.0	14.8
Private household workers	3.9	1.3	2.4	2.6	1.6	1.9	3.8	1.2	2.1	3.5	1.9	2.5	2.5	1.7	2.6
Service workers, except private household	6.4	7.8	10.7	2.8	4.4	7.4	7.9	9.8	10.6	5.3	7.5	9.1	5.5	7.1	11.2
Farm laborers and foremen	3.9	3.7	.7	19.6	10.9	5.9	2.2	1.2	.9	10.9	5.6	3.5	10.0	4.3	.5
Laborers, except farm and mine	6.0	8.9	4.6	7.8	5.7	3.7	5.2	2.9	2.7	6.0	4.2	4.1	9.5	7.3	6.5
Occupation not reported	.6	.9	5.4	1.3	2.6	1.9	.8	2.3	4.4	1.1	1.3	4.9	1.5	2.3	4.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.0	6.2	10.4	3.1	3.8	4.9	8.4	11.9	15.6	3.8	4.3	5.8	4.5	5.0	8.3
Farmers and farm managers	9.9	9.0	5.0	41.2	37.4	29.2	6.6	4.0	2.1	29.7	20.8	15.3	27.3	19.1	8.4
Managers, officials, and prop's, exc. farm	9.5	10.3	8.8	6.8	7.6	8.0	10.7	8.2	10.1	8.3	7.7	8.2	11.8	14.2	17.5
Clerical, sales, and kindred workers	10.0	9.0	9.5	4.2	5.1	7.3	15.6	15.4	15.6	7.1	8.4	8.3	6.5	6.6	9.4
Craftsmen, foremen, and kindred workers	14.7	17.3	21.0	5.7	11.6	16.0	18.2	19.6	18.9	11.1	15.1	16.5	11.4	19.1	18.5
Operatives and kindred workers	33.6	26.5	25.4	6.0	11.5	17.9	23.9	26.0	20.3	14.2	24.9	29.0	11.1	16.6	17.5
Private household workers	.1	.1	- -	.1	.1	.2	.1	.1	.1	.1	- -	- -	.2	.1	- -
Service workers, except private household	4.6	5.5	8.0	1.6	2.5	3.5	5.9	7.9	7.8	4.2	6.3	7.0	3.5	4.1	6.5
Farm laborers and foremen	4.7	4.2	.9	21.5	11.7	6.7	2.9	1.5	1.2	13.3	6.1	- -	11.5	4.2	.7
Laborers, except farm and mine	7.3	11.0	6.2	8.8	6.7	4.8	6.9	4.0	3.9	7.1	5.3	5.1	11.0	9.1	9.4
Occupation not reported	.5	1.0	4.7	1.0	2.1	1.6	.8	1.5	4.3	.9	1.0	4.9	1.2	1.9	3.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	22.6	21.1	19.1	14.9	14.6	18.8	14.3	15.4	15.5	15.4	12.1	13.7	17.9	12.5	16.3
Farmers and farm managers	1.0	1.6	.4	6.4	3.0	1.8	.3	.5	.2	1.1	1.2	.6	4.8	1.8	1.5
Managers, officials, and prop's, exc. farm	4.6	4.3	4.5	4.1	4.8	3.4	3.5	2.7	3.3	5.3	3.7	3.6	11.8	11.8	7.7
Clerical, sales, and kindred workers	32.8	41.3	37.1	22.2	31.3	32.9	43.8	48.4	46.2	18.6	28.0	27.4	24.4	29.6	28.8
Craftsmen, foremen, and kindred workers	.5	1.1	.6	.4	.6	.7	1.1	1.5	1.1	3.1	1.8	1.5	.6	1.1	1.2
Operatives and kindred workers	3.3	4.2	3.4	10.3	10.1	8.8	7.6	8.4	6.5	24.6	26.9	21.8	2.2	9.6	8.8
Private household workers	20.3	6.4	9.0	20.0	9.2	7.3	14.4	3.9	6.0	17.7	7.9	8.7	15.7	7.2	8.2
Service workers, except private household	14.0	16.9	18.4	10.8	13.5	19.6	13.5	14.2	16.0	9.9	11.4	14.0	16.8	17.5	20.9
Farm laborers and foremen	.2	1.5	- -	6.8	6.9	3.4	.2	.5	.2	.8	4.1	1.9	1.4	4.8	- -
Laborers, except farm and mine	.1	.6	- -	.9	.9	.2	.5	.3	.5	1.4	.8	1.6	1.1	.8	.3
Occupation not reported	.7	1.1	7.4	3.1	5.1	3.2	.8	4.4	4.5	2.1	2.1	5.1	3.4	3.4	6.3

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Iron			Isabella			Jackson			Kalamazoo			Kalkaska		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	8.6	7.1	9.7	6.2	8.8	12.2	7.5	8.9	10.7	8.3	10.4	13.3	6.1	6.6	10.3
Farmers and farm managers	7.3	6.1	1.7	30.6	21.9	9.0	8.0	4.6	2.1	5.8	3.0	1.6	44.7	29.6	7.7
Managers, officials, and prop's, exc. farm	9.5	8.1	8.9	7.6	7.5	6.7	8.5	8.7	7.6	8.1	8.8	7.8	6.2	8.8	9.7
Clerical, sales, and kindred workers	12.3	12.4	14.4	9.0	14.3	18.2	17.5	19.7	21.3	17.9	20.3	21.7	3.5	8.9	16.5
Craftsmen, foremen and kindred workers	12.2	13.7	15.3	8.0	12.2	11.1	15.4	16.4	15.0	14.5	16.3	14.2	3.5	10.3	13.6
Operatives and kindred workers	26.7	32.5	31.6	12.2	15.1	16.1	22.2	24.6	23.0	25.4	24.6	20.7	5.5	13.0	19.4
Private household workers	2.5	1.2	.9	4.0	1.8	4.4	3.6	2.0	1.8	3.3	1.6	2.0	2.9	1.6	2.3
Service workers, except private household	7.9	7.9	10.4	4.4	7.4	12.5	7.8	8.4	9.4	6.8	8.4	9.0	3.5	5.2	8.6
Farm laborers and foremen	2.7	4.0	.8	13.0	6.0	2.2	3.4	1.9	1.3	2.5	1.2	.9	11.9	8.7	3.6
Laborers, except farm and mine	9.7	4.4	4.9	3.8	3.6	4.8	5.1	3.7	3.6	5.9	4.3	3.7	11.4	5.4	7.1
Occupation not reported	.5	2.6	1.2	1.2	1.5	2.9	1.0	1.3	4.2	1.4	1.1	5.2	.7	1.9	1.3
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.7	5.4	7.0	4.2	6.5	10.6	6.1	7.7	9.5	6.0	8.5	12.4	3.1	3.6	8.6
Farmers and farm managers	8.6	7.0	2.0	36.1	27.5	13.0	10.4	6.2	2.8	7.8	4.3	2.3	49.0	35.9	10.6
Managers, officials, and prop's, exc. farm	10.1	8.9	10.3	8.4	8.4	8.9	10.2	10.3	9.4	9.8	10.9	10.3	5.7	8.8	10.4
Clerical, sales, and kindred workers	8.2	6.7	7.0	6.3	8.5	10.4	13.0	13.0	13.2	13.7	13.7	13.9	2.8	5.3	11.4
Craftsmen, foremen, and kindred workers	14.7	16.7	20.0	9.5	15.0	16.3	20.1	22.1	21.2	19.1	22.3	20.7	4.0	12.6	19.2
Operatives and kindred workers	31.4	39.1	39.3	13.1	16.2	20.2	22.2	25.7	26.5	26.3	25.9	22.9	6.2	13.5	20.0
Private household workers	.2	.2	- -	- -	- -	.2	.3	.1	.1	.2	.1	.2	- -	.1	- -
Service workers, except private household	5.9	5.9	5.7	2.6	4.6	8.1	6.3	6.5	6.4	5.0	6.2	5.9	2.1	3.5	5.5
Farm laborers and foremen	3.1	3.1	1.1	14.7	7.4	2.8	4.4	2.3	1.7	3.3	1.5	1.0	13.6	9.0	3.7
Laborers, except farm and mine	11.6	5.4	6.3	4.3	4.5	6.6	6.2	4.9	5.1	7.6	5.8	5.4	13.1	6.5	9.8
Occupation not reported	.5	1.6	1.1	.9	1.2	2.9	.8	1.1	4.3	1.2	.9	5.0	.4	1.2	.9
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	23.0	14.5	18.3	16.2	17.4	15.5	12.0	11.9	13.6	14.9	14.9	15.0	26.9	19.1	14.0
Farmers and farm managers	1.1	2.6	.7	3.4	.9	1.1	.7	.4	.4	.3	.2	.3	15.2	3.6	1.0
Managers, officials, and prop's, exc. farm	6.5	4.4	4.6	4.0	3.7	2.5	3.2	4.3	3.6	3.1	4.0	2.7	9.4	8.7	8.3
Clerical, sales, and kindred workers	32.6	37.5	38.0	22.1	35.8	33.4	31.2	36.9	37.4	29.9	35.7	37.0	8.8	24.2	28.0
Craftsmen, foremen, and kindred workers	- -	.5	- -	1.0	1.5	.8	1.1	1.6	1.4	1.4	2.1	1.2	.6	.8	1.0
Operatives and kindred workers	3.6	3.6	7.4	7.7	10.7	8.0	22.3	21.6	15.4	22.5	21.6	16.5	.6	11.1	18.0
Private household workers	13.9	5.7	3.9	23.5	8.4	12.7	13.8	6.5	5.7	12.4	5.2	5.7	22.8	7.9	7.5
Service workers, except private household	17.6	16.5	25.4	13.3	17.6	21.1	12.2	13.4	15.9	11.9	13.6	14.9	12.9	11.9	15.8
Farm laborers and foremen	.9	8.0	- -	4.6	.8	1.0	.2	.8	.4	.2	.5	.7	- -	7.5	3.3
Laborers, except farm and mine	- -	.1	.3	1.3	.5	1.1	1.8	.7	.3	1.3	.8	.5	- -	.8	1.0
Occupation not reported	.7	6.6	1.4	2.8	2.6	2.8	1.4	2.0	3.9	2.1	1.5	5.5	2.9	4.4	2.3

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Kent			Keweenaw			Lake			Lapeer			Leelanau		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	7.6	8.6	11.1	3.9	3.4	4.1	5.6	6.1	5.8	6.3	5.9	8.6	5.6	7.2	9.6
Farmers and farm managers	6.7	3.5	1.8	6.1	2.6	.7	50.4	31.0	10.7	30.1	20.6	9.8	39.0	28.2	11.8
Managers, officials, and prop's, exc. farm	9.0	9.1	8.4	9.0	7.4	5.5	9.9	9.1	10.4	6.0	5.8	5.9	7.7	6.6	7.4
Clerical, sales, and kindred workers	20.4	21.9	23.9	7.5	9.4	11.5	5.8	10.2	14.5	7.2	11.7	12.8	4.7	9.5	16.5
Craftsmen, foremen, and kindred workers	15.3	16.5	15.3	12.3	16.9	21.8	6.9	10.5	15.8	8.2	11.7	14.8	5.3	11.7	13.7
Operatives and kindred workers	24.8	26.4	22.9	43.2	45.1	38.9	6.7	9.8	12.5	11.6	21.0	23.6	6.1	10.2	15.4
Private household workers	3.7	1.7	2.1	2.9	.4	- -	3.1	2.5	5.7	2.7	1.0	2.3	3.9	1.7	2.7
Service workers, except private household	6.9	7.1	7.7	6.2	4.7	9.8	5.3	6.9	10.1	4.9	7.5	10.7	3.7	5.1	8.7
Farm laborers and foremen	2.2	1.0	.6	.5	- -	- -	11.9	9.7	1.8	16.5	8.4	4.9	17.0	11.5	5.7
Laborers, except farm and mine	4.7	4.1	3.7	8.3	9.5	7.2	5.8	11.8	11.4	4.8	4.1	3.5	6.5	5.0	6.0
Occupation not reported	1.0	1.0	3.2	.5	.6	.7	.5	2.1	3.0	1.8	2.4	3.0	.6	3.2	2.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.4	7.0	9.6	2.6	2.6	4.7	3.4	4.9	4.6	3.3	3.5	5.8	3.5	4.4	7.7
Farmers and farm managers	8.8	4.8	2.5	6.6	2.9	.8	56.5	33.8	13.0	35.0	25.5	13.4	43.1	33.6	15.5
Managers, officials, and prop's, exc. farm	11.1	11.5	11.1	9.3	6.9	3.2	10.0	8.5	11.9	6.2	6.2	7.3	7.3	6.6	8.8
Clerical, sales, and kindred workers	16.1	15.4	16.7	4.4	5.3	6.0	4.7	7.7	7.9	4.8	7.4	7.3	3.0	5.8	7.6
Craftsmen, foremen, and kindred workers	20.1	22.2	22.1	13.5	18.2	24.5	7.8	13.1	21.9	9.5	14.3	20.5	6.0	14.0	19.6
Operatives and kindred workers	26.7	28.0	24.9	48.1	49.2	45.1	6.9	11.2	16.8	12.5	23.1	28.0	6.6	10.9	16.4
Private household workers	.1	.1	.1	- -	.2	- -	.2	.3	.4	.2	.1	.1	.4	.2	.2
Service workers, except private household	5.1	5.1	5.0	5.7	3.9	6.6	3.4	4.1	5.1	2.4	4.0	4.5	2.8	3.0	6.6
Farm laborers and foremen	2.8	1.2	.8	.6	- -	- -	13.5	7.4	2.2	19.2	9.1	5.6	19.6	13.2	7.5
Laborers, except farm and mine	5.9	5.2	5.1	9.3	10.4	8.3	6.7	14.7	15.4	5.4	4.9	4.8	7.3	6.0	8.4
Occupation not reported	.8	.8	2.9	.6	.5	.8	.4	1.7	3.0	1.5	2.0	2.8	.4	2.2	1.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.1	12.7	14.0	15.6	12.7	- -	19.2	10.5	8.8	23.4	15.8	15.5	19.6	21.0	14.0
Farmers and farm managers	.5	.4	.4	1.6	- -	- -	11.9	20.7	5.1	2.7	.8	.8	12.4	2.2	3.1
Managers, officials, and prop's, exc. farm	3.1	3.2	2.8	6.3	12.7	20.0	9.6	11.5	6.7	4.8	4.3	2.6	10.3	6.6	4.2
Clerical, sales, and kindred workers	32.7	38.4	38.4	34.4	52.4	45.9	13.0	19.7	30.7	20.6	29.2	26.5	15.2	27.6	37.1
Craftsmen, foremen, and kindred workers	1.3	2.0	1.6	1.6	3.2	4.7	1.1	.6	.9	1.2	.9	.7	.6	.9	- -
Operatives and kindred workers	19.4	22.6	18.8	1.6	1.6	- -	5.1	4.3	1.9	6.5	12.5	12.7	2.8	6.8	13.1
Private household workers	14.2	5.8	6.2	28.1	3.2	- -	21.5	10.8	18.8	16.7	4.9	7.7	26.4	8.8	8.5
Service workers, except private household	12.0	12.1	13.2	10.9	12.7	29.4	17.5	17.7	22.3	18.6	21.9	26.1	9.0	14.9	13.6
Farm laborers and foremen	.2	.3	.2	- -	- -	- -	2.3	18.4	.9	1.3	5.4	3.1	.6	3.1	1.6
Laborers, except farm and mine	1.3	1.2	.8	- -	- -	- -	- -	.6	1.6	1.1	.5	.4	1.2	.2	.6
Occupation not reported	1.4	1.5	3.9	- -	1.6	- -	1.1	3.6	3.0	3.1	3.8	3.7	1.9	8.1	4.1

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES 1940, 1950 and 1960

	Lenawee			Livingston			Luce			Mackinac			Macomb		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.8	6.9	9.9	6.8	7.8	10.2	7.8	9.3	12.5	5.3	5.6	8.9	5.5	5.8	11.9
Farmers and farm managers	20.9	13.0	6.6	26.2	17.3	6.1	5.2	4.2	.8	13.1	9.3	4.4	7.4	3.3	.9
Managers, officials, and prop's, exc. farm	12.7	7.6	7.2	7.0	7.0	7.0	8.3	8.8	9.3	13.7	16.6	12.9	6.1	6.1	6.6
Clerical, sales, and kindred workers	11.2	14.8	16.5	9.8	14.5	18.1	9.5	12.9	13.2	8.3	9.9	15.7	12.3	17.0	22.7
Craftsmen, foremen, and kindred workers	9.8	12.7	12.4	10.1	16.2	16.5	11.5	11.6	9.6	10.6	13.3	16.8	18.8	23.2	20.8
Operatives and kindred workers	15.9	26.1	26.6	10.1	18.5	20.8	14.1	15.4	10.9	11.6	15.6	13.2	26.7	29.8	22.5
Private household workers	3.4	2.1	2.7	2.7	1.3	2.3	3.5	2.1	4.1	3.5	1.3	2.1	2.5	1.0	1.1
Service workers, except private household	4.3	5.9	8.0	5.0	6.5	7.8	14.7	22.3	28.9	8.1	10.0	13.2	6.8	6.2	7.0
Farm laborers and foremen	7.7	3.5	1.8	13.5	5.0	2.7	3.1	2.7	.6	6.4	2.9	1.0	5.1	1.8	.5
Laborers, except farm and mine	6.6	5.9	4.1	7.6	3.8	3.6	21.9	10.4	7.7	18.6	14.1	8.6	7.3	4.3	3.0
Occupation not reported	1.9	1.5	4.0	1.2	2.0	4.7	.4	.4	2.3	.9	1.3	3.2	1.4	1.5	3.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.0	4.9	7.5	4.3	5.8	7.8	4.7	6.3	12.6	3.6	3.6	7.1	4.2	4.8	12.1
Farmers and farm managers	26.8	16.9	9.1	30.9	21.3	8.4	5.9	5.5	1.3	15.0	11.0	5.8	8.6	4.0	1.2
Managers, officials, and prop's, exc. farm	8.7	8.7	8.7	7.7	7.9	9.0	9.5	10.7	12.8	14.2	16.9	13.9	6.6	6.8	7.9
Clerical, sales, and kindred workers	8.5	9.6	9.0	6.3	9.0	9.7	6.0	8.5	7.7	5.6	6.0	7.8	9.7	10.5	13.7
Craftsmen, foremen, and kindred workers	12.5	16.3	17.1	12.0	20.7	23.3	14.4	16.2	15.2	12.6	15.8	23.9	22.1	28.9	27.7
Operatives and kindred workers	17.1	27.7	32.4	10.1	19.7	24.6	17.3	19.7	14.9	13.2	17.9	17.5	28.0	32.2	25 4
Private household workers	.2	.1	.2	.1	.1	- -	.5	- -	.3	.3	.1	.2	.1	.1	- -
Service workers, except private household	2.8	3.5	4.0	3.3	4.0	4.1	10.1	14.5	20.1	5.8	7.1	9.4	5.7	4.2	4.7
Farm laborers and foremen	9.8	3.9	2.3	16.0	5.7	3.3	3.7	3.8	.6	7.2	3.3	.5	5.8	1.8	.6
Laborers, except farm and mine	8.2	7.2	5.5	8.5	4.7	4.9	27.7	14.3	12.0	22.0	16.7	11.6	8.1	5.3	3.9
Occupation not reported	1.6	1.3	4.3	.9	1.1	4.7	.3	.5	2.6	.7	1.4	2.2	1.1	1.4	2.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	34.0	13.5	15.9	19.0	14.6	15.8	19.4	16.3	12.6	14.7	15.5	13.3	12.8	9.8	11.3
Farmers and farm managers	.9	.8	.6	3.1	3.4	.9	2.4	.9	- -	3.2	.8	1.0	.9	.6	.3
Managers, officials, and prop's, exc. farm	3.3	4.2	3.5	4.0	4.0	2.4	3.7	4.1	3.5	10.9	14.9	10.5	3.6	3.4	3.0
Clerical, sales, and kindred workers	20.6	31.1	35.1	27.0	33.3	37.6	23.1	23.9	22.3	22.6	29.3	34.5	26.7	41.5	48.1
Craftsmen, foremen, and kindred workers	.7	1.3	.9	.9	1.1	.8	.5	- -	.5	.3	1.1	- -	1.2	1.7	1.0
Operatvies and kindred workers	12.1	20.9	12 3	10.3	14.7	12.1	2.4	4.5	4.3	3.0	4.2	3.1	19.6	20.7	14.1
Private household workers	14.3	8.5	8.9	15.2	5.2	7.5	15.0	7.3	10.3	20.9	6.8	6.6	15.3	4.4	4.1
Service workers, except private household	9.3	13.3	18.0	13.4	14.7	16.5	32.0	41.7	43.3	20.4	24.0	22.1	12.8	13.4	13.6
Farm laborers and foremen	.6	2.1	.7	1.2	2.9	1.3	.8	- -	.5	1.9	1.1	2.1	1.3	1.8	.3
Laborers, except farm and mine	1.3	1.9	.5	2.8	.7	.4	- -	.6	.8	.3	1.3	1.2	2.7	.8	.5
Occupation not reported	2.8	2.4	3.5	3.0	5.4	4.7	.8	.2	1.9	1.9	1.1	5.7	3.1	1.8	3.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Manistee			Marquette			Mason			Mecosta			Menominee		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	6.4	7.0	9.0	8.3	8.9	12.4	5.8	6.1	8.8	6.8	7.3	13.4	6.1	6.5	9.5
Farmers and farm managers	17.5	11.6	4.3	3.0	2.3	.5	25.9	16.3	7.4	35.8	24.2	7.8	20.6	16.3	9.0
Managers, officials, and prop's, exc. farm	9.0	7.2	8.2	8.2	8.1	8.2	8.9	8.6	8.4	8.0	8.4	8.4	7.6	7.4	8.8
Clerical, sales, and kindred workers	10.2	15.1	15.8	14.0	15.8	15.7	10.3	13.9	14.6	8.1	13.6	18.2	11.1	12.6	14.2
Craftsmen, foremen, and kindred workers	11.3	15.4	16.8	12.7	14.1	15.1	8.8	13.8	15.4	8.7	10.3	12.4	9.8	10.4	13.8
Operatives and kindred workers	19.6	22.5	23.2	30.7	30.5	23.7	15.3	21.6	23.5	8.6	17.5	17.3	16.4	20.4	22.8
Private household workers	2.7	1.4	1.4	2.7	1.1	1.9	2.9	1.6	1.6	2.8	1.9	2.7	3.4	1.7	2.4
Service workers, except private household	5.8	6.8	9.9	7.9	8.3	11.5	4.8	7.1	7.9	3.6	6.0	9.0	4.5	6.3	8.1
Farm laborers and foremen	6.4	4.8	2.1	1.7	1.0	.4	9.9	6.0	2.4	12.9	5.4	3.2	10.8	8.4	2.2
Laborers, except farm and mine	10.0	8.8	7.2	10.1	8.9	4.5	5.2	4.0	6.3	3.5	3.7	4.7	8.8	9.5	7.0
Occupation not reported	1.0	1.0	2.2	.8	.9	6.0	.6	1.0	3.7	1.3	1.6	2.8	1.0	.5	2.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.6	5.2	6.6	5.1	6.3	10.9	3.5	4.1	6.4	4.3	5.3	12.3	3.7	4.4	7.6
Farmers and farm managers	21.6	14.9	5.9	3.5	2.8	.7	30.6	20.2	9.6	40.5	30.5	10.7	23.9	20.3	11.8
Managers, officials, and prop's, exc. farm	10.5	8.3	10.9	9.6	9.3	9.8	9.8	9.6	10.1	8.4	9.2	9.9	8.2	8.4	10.3
Clerical, sales, and kindred workers	7.3	10.9	7.7	10.4	10.1	9.1	7.2	8.8	9.3	5.4	8.8	11.7	8.1	7.8	9.4
Craftsmen, foremen, and kindred workers	14.0	20.0	23.4	15.9	18.1	20.4	10.5	17.4	20.3	10.0	13.0	16.4	11.5	13.0	18.3
Operatives and kindred workers	16.0	20.7	24.5	33.9	33.7	28.7	14.7	23.0	24.5	9.5	17.0	19.8	17.4	21.5	24.7
Private household workers	- -	- -	- -	.2	.1	- -	.1	.2	.2	- -	.1	.3	.1	- -	.1
Service workers, except private household	4.7	5.2	6.5	6.2	6.5	7.9	3.5	5.6	5.5	2.0	3.5	5.9	3.3	4.1	3.9
Farm laborers and foremen	8.2	5.0	2.7	1.8	1.0	.6	13.7	5.5	2.5	14.6	6.5	4.2	12.6	7.8	2.5
Laborers, except farm and mine	12.3	11.2	10.0	12.7	11.4	5.9	5.8	4.8	8.1	4.0	4.6	6.3	10.5	12.0	9.4
Occupation not reported	.7	.7	1.8	.6	.7	5.9	.6	.9	3.5	1.2	1.5	2.5	.8	.5	2.0
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	13.0	12.5	14.6	19.8	17.1	16.5	16.4	13.4	15.0	22.2	14.7	16.2	18.8	13.4	14.8
Farmers and farm managers	3.1	1.5	.6	1.0	.8	.1	4.3	2.1	1.8	6.6	1.6	.7	3.4	2.7	1.2
Managers, officials, and prop's, exc. farm	3.6	3.6	2.1	3.3	4.3	4.0	4.9	5.0	3.7	5 8	5.5	4.9	4.3	3.8	4.3
Clerical, sales and kindred workers	21.3	28.2	34.3	27.0	34.2	33.3	24.6	32.2	28.5	24.6	30.9	34.4	26.9	29.0	28.0
Craftsmen, foremen, and kindred workers	1.4	1.1	1.6	.7	1.4	.9	.9	.9	2.6	.3	.8	2.5	.9	1.5	1.0
Operatives and kindred workers	32.5	28.2	20.1	19.2	20.3	10.5	17.9	16.6	20.8	2.8	19.2	10.9	11.0	16.5	17.3
Private household workers	12.3	5.9	4.5	11.8	4.4	6.7	15.6	6.7	5.3	20.2	8.3	8.7	20.4	7.2	8.9
Service workers, except private household	9.5	11.8	17.7	14.1	13.9	21.2	10.7	12.7	14.4	13.6	15.0	16.7	11.1	14.0	20.2
Farm laborers and foremen	.3	4.1	.8	1.3	1.3	- -	1.3	7.7	2.2	2.1	1.6	.8	.9	10.1	1.2
Laborers, except farm and mine	.9	1.3	.5	.6	.8	.6	2.4	1.1	1.6	.1	.4	.7	.3	1.1	.2
Occupation not reported	1.9	1.9	3.1	1.2	1.5	6.1	1.2	1.6	4.0	1.7	2.1	3.6	2.0	.6	2.8

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS BY SEX, FOR COUNTIES, 1940, 1950 and 1960

OCCUPATION	Midland			Missaukee			Monroe			Montcalm			Montmorency		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.9	14.9	19.5	5.8	5.6	9.5	4.9	6.0	7.6	5.6	6.7	8.7	7.0	7.8	8.9
Farmers and farm managers	15.8	8.3	2.0	43.9	36.0	20.7	16.5	9.4	4.0	34.4	21.3	9.4	40.1	22.8	10.6
Managers, officials, and prop's, exc. farm	6.2	7.3	7.7	5.6	5.7	6.1	6.3	6.6	6.4	7.7	7.1	6.3	8.8	9.4	10.5
Clerical, sales, and kindred workers	10.8	16.6	17.7	4.1	8.2	12.0	11.3	15.0	17.8	8.2	12.6	14.5	5.1	10.8	15.6
Craftsmen, foremen, and kindred workers	13.7	17.6	16.8	4.8	9.0	9.5	11.8	16.2	17.0	7.9	11.4	12.5	3.9	11.6	11.9
Operatives and kindred workers	19.6	19.7	16.3	5.5	10.5	15.7	21.1	28.6	26.8	12.7	21.0	27.8	5.5	11.5	11.3
Private household workers	4.8	2.2	3.5	3.1	1.7	2.8	2.9	1.4	1.8	3.7	2.1	2.6	2.7	1.7	4.5
Service workers, except private household	4.7	6.5	7.3	1.7	3.6	5.5	4.7	6.1	8.0	3.4	5.7	6.5	2.9	8.2	10.7
Farm laborers and foremen	6.4	1.9	.6	20.0	12.5	6.4	8.1	2.7	1.6	9.7	6.3	3.4	17.3	7.8	3.1
Laborers, except farm and mine	5.9	4.2	3.4	4.7	4.4	6.3	.5	6.7	5.3	5.6	4.0	4.0	6.3	7.9	11.8
Occupation not reported	1.1	.8	5.0	.7	2.7	5.4	2.0	1.3	3.7	1.2	1.8	4.3	.5	.6	1.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.0	14.3	19.9	3.4	3.1	6.4	2.6	4.1	5.9	3.4	4.6	7.1	4.1	5.2	8.4
Farmers and farm managers	18.6	10.2	2.9	49.1	42.2	26.4	19.4	11.6	5.2	40.6	27.2	13.0	44.0	27.5	14.6
Managers, officials, and prop's, exc. farm	6.7	7.9	9.1	5.8	5.8	6.7	7.0	7.5	7.7	8.2	8.3	7.6	9.0	10.2	11.8
Clerical, sales, and kindred workers	6.9	9.8	10.5	2.7	4.7	8.9	8.1	9.3	10.0	5.7	7.4	7.8	3.7	6.7	7.5
Craftsmen, foremen, and kindred workers	16.2	21.8	22.3	5.3	10.8	12.4	14.0	20.0	22.6	9.2	14.3	17.4	4.4	13.8	16.5
Operatives and kindred workers	22.7	22.9	20.7	5.3	10.1	17.4	22.4	31.4	32.2	12.5	21.6	30.4	6.1	12.9	14.7
Private household workers	.1	- -	.1	- -	.1	- -	.1	.1	- -	.1	.1	.1	.1	.2	- -
Service workers, except private household	3.4	4.9	4.4	.9	3.0	2.5	3.3	4.1	4.4	2.0	3.6	3.0	1.8	5.0	5.4
Farm laborers and formen	7.5	2.2	.8	22.3	13.5	5.7	9.4	2.7	1.6	11.4	6.6	4.2	19.3	8.7	3.8
Laborers, except farm and mine	7.0	5.2	4.4	4.5	3.5	8.0	12.2	8.1	6.9	6.1	4.9	5.5	7.2	9.6	15.9
Occupation not reported	.9	.7	5.0	.7	2.3	5.5	1.5	1.1	3.4	1.0	1.5	3.9	.2	.3	1.4
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	15.7	17.2	18.5	25.8	17.7	19.8	16.3	13.4	12.4	17.0	13.8	12.5	27.0	20.5	10.4
Farmers and farm managers	1.3	.9	.2	.8	5.7	2.6	1.8	1.0	.7	2.9	1.4	.6	13.1	.5	- -
Managers, officials, and prop's exc. farm	3.8	4.7	3.6	3.3	5.4	4.0	3.0	3.4	2.8	4.9	3.3	3.2	7.3	5.7	7.2
Clerical, sales, and kindred workers	31.2	43.1	38.6	15.8	24.8	22.1	27.3	36.5	40.1	21.1	30.1	30.6	14.6	30.5	36.5
Craftsmen, foremen, and kindred workers	.5	1.4	.7	.4	.5	- -	.8	1.8	1.1	1.5	1.4	.8	- -	1.0	- -
Operatives and kindred workers	4.0	7.4	3.6	7.1	12.8	10.1	15.0	17.8	11.3	13.8	19.2	21.5	1.5	4.8	2.4
Private household workers	29.2	10.3	13.4	29.2	9.6	11.7	16.8	6.5	6.8	22.1	8.9	8.7	20.4	8.6	16.3
Service workers, except private household	11.4	12.5	15.8	8.7	10.6	15.2	11.8	13.7	18.5	10.6	13.0	14.8	10.2	23.3	24.5
Farm laborers and foremen	.6	.9	- -	1.7	7.9	8.5	1.1	2.3	1.4	1.0	5.4	1.7	3.6	3.3	1.3
Laborers, except farm and mine	.2	.4	.5	6.3	.7	.8	1.9	1.4	.5	2.8	.8	.4	- -	- -	1.3
Occupation not reported	2.2	1.1	5.2	.8	4.4	5.1	4.2	2.2	4.3	2.4	2.8	5.2	2.2	1.9	- -

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Muskegon % distribution			Newaygo % distribution			Oakland % distribution			Oceana % distribution			Ogemaw % distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	6.6	8.1	10.1	5.4	6.5	9.2	8.3	10.4	15.6	6.1	6.6	8.7	5.8	6.2	6.0
Farmers and farm managers	3.8	1.9	8	37.1	22.8	10.7	2.6	1.1	.3	36.3	24.4	12.5	49.3	35.9	13.8
Managers, officials, and prop's, exc. farm...	7.8	7.9	6.8	7.0	7.0	7.8	8.0	9.0	10.1	7.9	7.0	5.7	7.9	11.6	10.4
Clerical, sales, and kindred workers	15.5	18.2	19.1	7.4	13.0	15.7	18.0	20.1	23.7	7.0	10.5	13.1	8.2	11.7	15.4
Craftsmen, foremen, and kindred workers	17.2	19.2	17.8	6.1	12.3	14.0	18.1	19.2	16.2	6.5	11.3	13.8	8.0	11.0	14.5
Operatives and kindred workers	28.1	28.7	26.4	6.7	19.6	22.3	26.0	25.8	18.5	7.9	18.0	24.1	7.6	10.0	19.9
Private household workers	3.3	1.6	2.2	3.0	1.1	2.0	4.3	2.0	2.1	3.1	1.7	1.4	3.1	1.3	2.6
Service workers, except private household	5.9	6.7	7.5	3.4	4.1	7.0	6.3	6.3	6.7	2.8	4.0	7.1	4.6	5.4	9.1
Farm laborers and foremen	1.7	1.0	.6	15.3	6.3	3.8	2.1	.8	.3	17.1	9.7	6.3	15.0	7.9	3.5
Laborers, except farm and mine	9.5	5.6	4.4	7.8	6.3	5.5	5.3	4.0	2.8	4.7	5.2	5.2	3.8	5.2	6.1
Occupation not reported	.5	1.0	4.3	1.0	1.0	1.9	1.0	1.2	3.6	.6	1.6	2.2	1.6	1.6	2.2
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	4.9	6.1	8.7	3.3	4.1	7.0	6.8	9.5	15.6	3.3	3.9	5.3	3.6	3.9	3.2
Farmers and farm managers	4.8	2.4	1.0	43.0	27.8	14.0	3.1	1.3	.4	41.4	29.8	15.7	56.0	41.5	18.7
Managers, officials, and prop's, exc. farm...	9.2	9.1	8.4	7.4	7.6	9.5	8.9	10.4	12.7	8.2	7.3	6.1	8.7	12.4	12.8
Clerical, sales, and kindred workers	11.3	11.6	11.0	4.6	7.8	9.0	14.1	13.6	15.9	4.2	6.4	7.8	5.8	7.2	7.2
Craftsmen, foremen, and kindred workers	22.2	24.6	24.3	7.2	14.9	18.8	22.0	24.5	21.9	7.6	13.7	17.6	9.2	13.1	19.5
Operatives and kindred workers	29.2	32.2	31.7	6.9	19.7	24.5	30.1	29.3	21.9	7.9	17.8	27.5	8.4	11.4	22.7
Private household workers	.1	.1	.1	.1	.1	.1	.4	.2	.1	.1	- -	- -	- -	.1	- -
Service workers, except private household	4.6	4.7	4.0	2.0	2.3	3.4	4.5	4.1	4.0	1.7	2.2	3.6	2.8	3.1	4.9
Farm laborers and foremen	2.2	1.1	.7	17.8	7.2	4.6	2.6	.9	.3	19.8	11.2	7.3	17.1	8.2	4.8
Laborers, except farm and mine	11.2	7.1	6.0	7.1	7.5	7.5	6.4	5.0	3.7	5.3	6.2	7.0	4.4	6.2	8.4
Occupation not reported	.4	.9	4.0	.6	.9	1.7	1.0	1.1	3.3	.6	1.5	2.0	1.0	1.1	2.4
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers.	12.2	14.9	13.6	16.6	16.3	14.8	14.8	13.4	15.7	21.9	17.2	18.5	21.0	17.6	13.6
Farmers and farm managers	.6	.3	.2	6.3	2.3	2.2	.3	.2	.1	7.0	2.7	2.6	4.5	7.6	.5
Managers, officials, and prop's, exc. farm...	3.4	3.9	3.1	4.5	4.3	3.4	3.9	4.0	3.4	6.4	5.9	4.7	3.0	7.6	3.7
Clerical, sales, and kindred workers	29.2	39.7	38.3	21.7	33.7	33.6	34.5	41.9	44.2	23.2	27.1	28.8	23.7	34.3	37.3
Craftsmen, foremen, and kindred workers	1.0	1.5	2.1	.4	1.5	1.5	1.1	1.6	1.2	.4	1.6	2.3	.3	.4	1.1
Operatives and kindred workers	24.7	16.9	13.8	5.6	19.4	16.3	8.9	14.1	9.5	7.5	19.0	14.1	2.1	3.5	12.3
Private household workers	13.5	6.5	7.0	18.4	5.3	7.1	20.5	8.1	7.3	20.6	8.5	5.4	23.4	7.2	9.5
Service workers, except private household	10.2	13.5	15.7	10.4	11.3	16.7	13.8	13.8	13.9	9.1	11.2	17.4	16.5	17.1	20.4
Farm laborers and foremen	.2	.8	.5	2.0	2.9	1.7	.2	.4	.2	1.6	3.5	3.2	1.5	6.3	- -
Laborers, except farm and mine	4.1	.8	.6	10.7	1.5	.2	.6	.8	.4	1.3	1.3	- -	.3	.4	- -
Occupation not reported	.9	1.4	5.1	3.3	1.5	2.6	1.3	1.6	4.2	.9	2.0	2.9	5.4	4.3	1.7

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Ontonagon			Osceola			Oscoda			Otsego			Ottawa		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.4	7.1	9.2	5.8	6.3	7.7	6.9	6.7	13.2	6.6	7.8	7.0	5.6	6.5	9.0
Farmers and farm managers	19.1	19.3	7.0	40.4	27.5	12.4	31.5	21.5	9.7	29.0	17.0	6.2	14.8	9.0	4.1
Managers, officials, and prop's, exc. farm	7.6	8.5	7.7	7.1	6.2	7.3	12.2	13.3	16.1	10.1	11.9	13.4	8.2	8.1	7.4
Clerical, sales, and kindred workers	7.0	9.0	10.7	7.8	10.8	11.0	5.0	7.8	11.9	8.5	11.4	13.6	11.9	15.0	17.5
Craftsmen, foremen, and kindred workers	9.2	10.1	19.0	5.6	10.3	12.1	9.8	12.3	11.0	4.5	10.2	12.7	14.1	17.0	17.7
Operatives and kindred workers	11.5	16.7	24.0	6.1	14.4	23.3	5.9	13.8	12.4	7.7	16.5	22.9	23.9	27.4	26.6
Private household workers	2.1	1.1	2.4	2.8	2.6	2.6	5.0	1.4	1.2	2.5	1.1	2.0	3.3	1.7	1.9
Service workers, except private household	5.3	6.3	8.2	3.2	4.9	6.5	3.9	4.9	6.1	7.0	9.3	14.7	4.4	5.5	7.6
Farm laborers and foremen	10.0	9.4	3.1	13.7	9.7	3.8	9.8	6.8	.8	15.4	7.1	.8	6.5	3.9	2.1
Laborers, except farm and mine	21.6	10.9	5.1	6.7	4.7	3.8	8.9	7.8	15.0	6.7	6.3	3.9	6.3	4.1	3.9
Occupation not reported	1.2	1.5	3.4	.7	2.7	7.5	1.1	3.8	2.6	2.0	1.3	2.7	.9	1.8	2.3
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.3	4.5	7.3	3.2	4.3	5.1	5.8	4.1	8.7	3.8	5.4	6.2	4.2	5.0	7.5
Farmers and farm managers	20.7	21.7	8.4	45.8	34.9	16.8	36.8	25.1	12.9	32.9	21.1	8.7	17.8	11.6	5.4
Managers, officials, and prop's, exc. farm	7.8	8.8	8.2	7.2	6.8	8.4	10.9	12.5	18.8	10.9	13.4	17.0	9.3	9.6	9.4
Clerical, sales, and kindred workers	4.4	5.4	4.8	5.3	7.0	6.9	3.1	4.6	4.3	5.9	7.8	9.2	8.2	9.7	10.5
Craftsmen, foremen, and kindred workers	10.4	12.3	24.6	6.4	12.9	16.3	11.8	14.7	14.8	5.4	12.9	18.0	17.0	21.7	23.9
Operatives and kindred workers	12.8	19.5	30.8	6.5	15.0	22.2	7.1	16.1	16.1	8.4	16.8	24.4	24.7	28.4	29.4
Private household workers	.1	- -	- -	.1	.1	- -	.9	- -	- -	- -	.1	- -	.1	.1	.1
Service workers, except private household	4.1	4.3	4.7	1.9	2.9	3.1	2.0	3.2	3.1	5.1	5.5	7.4	3.4	3.6	4.2
Farm laborers and foremen	10.9	8.7	1.4	15.7	9.3	4.9	11.1	7.3	.6	18.1	7.6	1.2	7.6	4.0	2.2
Laborers, except farm and mine	24.5	13.2	6.5	7.3	5.6	7.3	10.0	9.2	19.4	8.0	7.9	5.7	7.1	5.2	5.2
Occupation not reported	1.0	1.5	3.2	.5	1.1	8.8	.7	3.2	1.2	1.5	1.6	2.1	.6	1.0	2.2
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	20.1	18.5	15.4	22.6	13.1	14.3	12.6	18.9	26.4	20.6	16.7	8.8	12.2	11.3	12.9
Farmers and farm managers	7.5	8.7	2.3	5.0	1.9	1.1	5.4	4.4	- -	9.4	2.2	.5	1.6	.6	.7
Managers, officials, and prop's, exc. farm	6.2	7.3	6.3	6.3	4.3	4.4	18.9	17.0	8.1	6.0	6.6	5.3	3.1	3.1	2.1
Clerical, sales, and kindred workers	26.3	25.5	30.4	23.9	23.7	21.4	14.4	22.6	34.4	21.3	24.8	23.4	28.5	32.1	35.5
Craftsmen, foremen, and kindred workers	1.1	.4	.6	.7	1.1	1.2	- -	1.3	- -	- -	.4	.7	1.3	1.8	1.5
Operatives and kindred workers	2.1	3.7	1.5	3.2	12.3	26.0	- -	2.5	1.5	4.1	15.1	19.7	20.6	24.2	19.2
Private household workers	16.1	6.0	10.2	20.9	10.9	9.2	25.2	8.2	4.8	15.0	4.6	6.6	17.4	6.9	6.5
Service workers, except private household	13.7	15.1	20.2	11.5	11.9	15.1	13.5	13.2	15.0	16.5	23.0	31.1	9.2	11.3	16.4
Farm laborers and foremen	3.5	12.7	8.6	1.1	11.0	.9	3.6	4.4	1.5	2.2	5.5	- -	1.4	3.5	1.8
Laborers, except farm and mine	.5	.6	.6	2.8	1.4	2.1	3.6	.6	1.8	.4	.7	- -	2.7	.8	.7
Occupation not reported	3.0	1.5	4.0	2.0	8.2	4.1	2.7	6.9	6.6	4.5	.4	3.9	1.9	4.3	2.6

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Presque Isle			Roscommon			Saginaw			St. Clair			St. Joseph		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	5.5	5.7	8.1	7.5	6.7	9.5	6.6	7.5	10.1	5.8	6.5	9.0	5.9	6.7	7.2
Farmers and farm managers	27.5	20.2	9.8	13.2	4.4	1.5	9.7	5.8	2.7	13.0	7.9	4.2	16.6	11.7	5.9
Managers, officials, and prop's, exc. farm	6.6	7.8	10.3	22.1	17.2	19.6	7.5	7.9	7.1	8.9	8.7	8.0	8.9	8.2	7.0
Clerical, sales, and kindred workers	6.0	8.7	11.9	8.4	13.2	18.2	16.0	18.1	20.5	15.0	18.0	19.8	13.8	16.0	15.3
Craftsmen, foremen, and kindred workers	8.7	13.3	14.7	10.3	19.6	15.6	14.8	17.4	16.2	14.3	16.8	16.3	12.7	15.2	14.4
Operatives and kindred workers	15.2	16.0	23.3	11.1	14.7	14.2	22.1	25.5	25.1	19.0	25.1	22.4	20.9	24.9	27.3
Private household workers	3.4	1.6	1.1	2.7	1.3	1.5	3.5	1.7	2.0	2.9	1.4	2.5	3.7	1.7	2.2
Service workers, except private household	4.1	5.3	9.5	10.3	10.9	8.0	6.4	7.1	8.5	5.6	6.5	8.4	5.3	6.4	6.3
Farm laborers and foremen	16.0	12.4	5.0	4.8	1.5	.4	4.9	1.8	.9	6.6	2.6	1.5	6.8	4.0	1.6
Laborers, except farm and mine	6.4	6.4	4.8	8.6	7.0	5.2	7.4	6.1	4.3	7.3	4.8	3.8	4.9	4.2	4.0
Occupation not reported	.6	2.7	1.6	1.0	3.5	6.1	1.4	1.1	2.6	1.7	1.7	4.1	.5	1.0	8.8
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	3.5	3.7	5.4	7.0	5.2	8.9	4.6	5.6	8.3	4.0	4.9	7.4	4.1	5.2	5.6
Farmers and farm managers	31.1	24.2	12.3	15.5	5.4	1.9	12.1	7.5	3.6	15.8	10.2	5.5	21.2	15.5	8.4
Managers, officials, and prop's, exc. farm	7.0	8.6	12.0	22.5	17.5	21.6	8.7	9.1	8.9	10.0	10.2	9.8	10.1	9.8	9.3
Clerical, sales, and kindred workers	4.3	5.1	6.7	6.2	9.2	11.3	11.8	11.6	12.3	10.4	11.3	12.6	9.7	10.3	9.7
Craftsmen, foremen, and kindred workers	10.1	16.0	18.6	12.8	24.8	20.9	18.5	22.5	22.5	17.6	21.8	22.5	16.1	20.1	21.0
Operatives and kindred workers	14.0	18.0	27.1	13.6	18.0	16.4	24.0	28.4	30.3	19.6	26.2	26.3	20.3	24.2	25.5
Private household workers	.1	- -	- -	.3	- -	.3	.1	.1	.1	.1	.1	.1	.1	.2	.2
Service workers, except private household	3.2	3.6	6.3	5.8	6.8	5.1	4.4	4.6	4.6	4.3	4.9	5.1	3.5	4.2	4.2
Farm laborers and foremen	18.8	11.7	4.4	5.2	1.7	.6	6.0	2.0	.9	8.1	2.9	1.8	8.4	4.4	1.8
Laborers, except farm and mine	7.6	7.6	6.0	10.6	9.0	6.6	8.8	7.6	5.9	8.7	6.1	5.2	6.1	5.4	5.5
Occupation not reported	.4	1.4	1.3	.4	2.3	6.2	.9	1.0	2.6	1.4	1.5	3.7	.5	.8	8.8
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	16.3	14.6	17.7	9.4	12.0	10.9	14.0	13.2	14.3	13.0	11.7	13.1	12.0	10.6	10.3
Farmers and farm managers	8.2	2.3	1.1	4.4	.7	.7	.6	.6	.6	1.7	.8	.8	1.1	1.4	1.1
Managers, officials, and prop's, exc. farm	4.5	4.0	4.1	20.7	16.3	14.5	3.2	4.0	2.9	4.3	4.2	3.7	4.9	3.9	2.5
Clerical, sales, and kindred workers	15.0	24.6	30.7	16.3	26.8	36.4	32.0	38.0	40.0	33.7	38.7	37.3	27.8	31.7	26.4
Craftsmen, foremen, and kindred workers	1.5	1.1	.4	1.0	1.7	1.6	1.1	1.7	1.0	1.3	1.4	1.0	1.4	1.8	1.4
Operatives and kindred workers	22.0	7.1	9.5	1.5	3.4	8.5	15.1	16.6	12.8	16.4	21.9	13.1	23.1	26.9	30.8
Private household workers	21.3	8.7	5.0	11.8	5.9	4.7	16.3	6.6	6.5	14.0	5.3	8.3	15.8	6.0	6.1
Service workers, except private household	8.6	12.9	20.9	27.1	24.9	15.5	13.8	15.0	17.8	11.0	11.3	16.4	11.1	12.4	10.5
Farm laborers and foremen	1.0	15.4	7.3	3.4	.7	- -	.5	1.3	.8	.5	1.6	.7	1.4	2.9	1.0
Laborers, except farm and mine	- -	.6	.4	1.0	- -	1.5	2.0	1.6	.7	1.6	.8	.4	.9	1.0	1.0
Occupation not reported	1.5	8.7	2.8	3.4	7.6	5.7	1.5	1.5	2.7	2.6	2.2	5.1	.6	1.4	9.0

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Sanilac			Schoolcraft			Shiawassee			Tuscola			Van Buren		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	4.3	5.1	7.8	6.8	7.8	7.3	5.7	6.3	8.4	5.2	6.3	8.2	5.7	5.9	8.1
Farmers and farm managers	46.2	37.1	22.2	9.4	5.3	2.5	20.1	11.9	5.6	34.8	26.1	13.3	29.9	17.6	7.8
Managers, officials, and prop's, exc. farm	5.7	6.2	6.7	11.6	10.1	10.9	7.8	7.4	6.7	6.2	6.9	6.0	8.9	7.4	6.1
Clerical, sales, and kindred workers	5.4	9.6	9.8	11.1	14.7	15.2	12.1	15.3	18.1	6.7	10.1	13.9	8.8	12.6	14.3
Craftsmen, foremen, and kindred workers	4.6	8.2	10.9	11.0	15.0	14.5	11.8	14.3	16.0	7.5	10.8	13.9	8.6	13.2	14.2
Operatives and kindred workers	5.5	11.3	18.0	16.0	21.1	20.8	19.0	28.4	27.0	9.5	18.0	22.1	11.3	21.8	24.2
Private household workers	2.4	2.7	2.1	2.9	2.6	3.1	3.4	1.5	2.6	2.9	1.3	2.1	2.6	1.6	2.1
Service workers, except private household	2.3	3.5	5.3	7.1	8.7	12.0	4.6	5.3	6.9	3.9	6.6	9.1	4.0	5.5	6.2
Farm laborers and foremen	18.7	10.5	7.0	3.4	2.7	2.0	8.6	3.3	1.7	17.7	7.4	4.5	12.1	7.8	5.8
Laborers, except farm and mine	3.9	3.5	3.9	19.8	11.3	10.2	5.5	4.3	4.3	4.6	3.8	3.7	6.3	5.3	4.9
Occupation not reported	1.1	2.2	6.3	.9	.6	1.6	1.4	1.9	2.7	.9	2.8	3.3	1.8	1.4	6.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	2.8	3.3	4.9	4.5	5.9	4.4	3.6	4.8	6.1	3.0	3.8	5.7	3.4	3.8	6.2
Farmers and farm managers	50.4	43.8	28.8	10.7	6.4	3.3	24.9	15.8	7.8	39.2	31.3	17.7	34.8	22.2	10.5
Managers, officials, and prop's, exc. farm	5.7	6.4	6.8	12.6	11.0	12.7	8.7	8.8	8.5	6.6	7.4	6.9	9.2	8.3	7.4
Clerical, sales, and kindred workers	3.3	5.8	5.9	8.0	8.3	8.7	8.9	9.5	10.4	4.6	6.2	8.0	5.8	8.4	8.2
Craftsmen, foremen, and kindred workers	5.0	9.7	14.1	13.0	18.7	20.1	14.4	18.4	22.4	8.5	12.9	18.9	10.1	16.8	19.7
Operatives and kindred workers	5.8	11.5	17.8	18.4	25.4	28.7	18.2	28.1	28.9	10.1	19.9	26.1	11.5	20.1	25.5
Private household workers	- -	.1	.2	- -	.3	- -	- -	.1	.2	.1	- -	- -	.1	.1	.1
Service workers, except private household	1.3	2.2	2.7	4.6	6.2	5.5	3.4	3.6	5.0	2.3	3.6	4.1	2.7	4.1	4.1
Farm laborers and foremen	20.5	11.2	7.9	3.9	3.2	1.8	10.5	3.9	2.2	19.8	8.1	4.8	14.1	8.5	6.2
Laborers, except farm and mine	4.3	4.2	4.9	23.5	14.0	14.1	6.1	5.6	5.9	5.2	4.6	4.8	6.9	6.5	6.4
Occupation not reported	.8	1.7	6.0	.7	.7	.7	1.2	1.4	2.5	.7	2.2	2.9	1.5	1.2	5.7
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	17.3	13.9	16.1	19.1	15.3	13.8	14.2	10.8	13.6	19.9	17.6	14.6	17.4	12.7	12.6
Farmers and farm managers	8.8	3.9	3.0	2.3	.7	.7	.7	.7	.7	4.8	2.8	1.7	4.6	2.5	1.6
Managers, officials, and prop's, exc. farm	5.0	4.9	6.5	5.9	6.5	6.7	4.2	3.4	2.6	4.1	5.0	3.5	7.0	4.6	3.0
Clerical, sales, and kindred workers	23.8	28.5	21.4	27.9	39.6	30.2	25.1	32.2	35.0	21.4	27.5	29.0	24.4	26.2	28.9
Craftsmen, foremen, and kindred workers	.8	.6	1.3	.8	.9	1.6	1.0	1.9	1.9	.5	1.1	1.0	.9	1.4	1.2
Operatives and kindred workers	3.2	10.2	18.5	3.1	4.8	2.8	22.2	29.2	22.6	5.9	9.4	11.8	10.5	27.2	21.2
Private household workers	22.8	15.9	7.7	18.1	11.5	10.1	17.0	5.8	7.8	22.1	6.7	7.5	15.4	6.5	7.1
Service workers, except private household	11.1	9.9	13.1	20.2	18.2	26.9	9.5	10.3	11.2	15.1	19.8	22.2	10.9	9.9	11.3
Farm laborers and foremen	3.0	7.0	4.4	.5	1.1	2.2	.6	1.6	.8	3.5	4.2	3.6	2.0	5.4	4.9
Laborers, except farm and mine	.4	.4	.7	- -	1.1	1.3	3.1	.7	.6	.7	.5	.6	3.2	1.3	1.3
Occupation not reported	3.9	4.9	7.3	2.1	.4	3.7	2.5	3.4	3.1	2.1	5.3	4.5	3.7	2.2	6.9

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Washtenaw			Wayne			Wexford			Detroit S.M.S.A.*			Lansing S.M.S.A.*		
	% distribution			% distribution			% distribution			% distribution			% distribution		
	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960	1940	1950	1960
Both sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.1	18.1	23.4	7.4	8.7	11.2	7.1	8.2	9.4	7.4	8.7	12.1	8.6	11.2	13.5
Farmers and farm managers	8.4	4.4	2.4	.2	.1	.1	16.6	10.5	3.3	.7	.4	.2	12.1	6.9	3.5
Managers, officials, and prop's, exc. farm	7.3	7.0	6.7	7.3	8.0	6.6	9.8	9.0	9.3	7.3	8.0	7.2	8.2	.6.5	7.3
Clerical, sales, and kindred workers	15.8	19.6	20.4	20.7	22.2	24.0	14.0	17.2	20.6	20.1	21.6	23.8	19.0	22.1	23.9
Craftsmen, foremen, and kindred workers	12.3	13.5	11.1	17.7	17.1	15.0	12.2	14.1	14.3	17.8	17.7	15.8	12.6	14.2	13.8
Operatives and kindred workers	15.8	17.4	14.3	26.8	27.5	22.0	16.8	22.3	22.2	26.7	27.4	21.4	18.1	21.5	17.4
Private household workers	4.6	2.3	2.5	3.1	1.6	2.2	3.3	2.6	3.0	3.2	1.7	2.0	3.8	1.4	2.2
Service workers, except private household	10.2	11.3	12.1	9.1	8.3	9.4	5.6	7.3	11.2	8.7	8.0	8.7	6.6	8.4	9.6
Farm laborers and foremen	4.3	1.8	1.1	.2	.2	.1	6.3	3.1	.8	.6	.3	.2	4.9	2.3	1.4
Laborers, except farm and mine	6.2	3.3	2.5	6.7	5.2	4.2	7.3	3.9	3.2	6.7	5.0	3.9	5.2	3.3	3.0
Occupation not reported	1.1	1.3	3.6	.6	1.1	5.3	1.0	1.8	2.8	.7	1.1	4.7	1.0	2.2	4.4
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	10.9	16.7	23.6	6.1	7.8	10.9	4.8	5.9	7.8	6.1	7.9	11.9	6.7	9.6	12.8
Farmers and farm managers	11.4	6.4	3.4	.3	.2	.1	4.0	14.0	4.6	.9	.5	.3	15.5	9.3	5.0
Managers, officials, and prop's, exc. farm	9.0	9.0	9.1	8.5	9.6	8.3	11.4	10.8	11.8	8.5	9.5	9.0	9.5	7.9	9.3
Clerical, sales, and kindred workers	11.5	12.3	12.1	15.6	14.3	15.1	10.2	11.7	14.3	15.2	14.0	15.1	12.7	13.3	13.9
Craftsmen, foremen, and kindred workers	16.8	19.4	17.0	22.8	22.6	21.4	14.8	18.1	20.3	22.7	23.2	22.1	15.9	19.0	19.9
Operatives and kindred workers	17.6	19.2	17.0	29.9	31.0	26.6	16.6	23.9	26.0	29.8	30.9	25.6	21.0	25.7	22.0
Private household workers	.3	.1	.1	.2	.1	.1	.2	.1	.2	.2	.1	.1	.1	.1	.1
Service workers, except private household	7.6	8.7	8.9	7.3	6.5	6.6	4.1	5.0	6.8	6.9	6.1	5.9	4.7	6.4	6.7
Farm laborers and foremen	5.8	2.4	1.4	.2	.1	.1	7.7	3.6	1.1	.7	.3	.2	6.3	2.8	1.8
Laborers, except farm and mine	8.0	4.6	3.8	8.6	6.7	6.0	8.4	5.3	4.7	8.3	6.4	5.3	6.6	4.3	4.1
Occupation not reported	1.0	1.2	3.5	.6	1.1	4.9	.8	1.7	2.6	.6	1.1	4.4	.9	1.5	4.2
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	22.1	21.0	22.9	11.5	11.0	12.0	14.8	14.3	12.5	11.8	11.2	12.5	15.0	15.2	14.8
Farmers and farm managers	.8	.3	.5	- -	- -	- -	1.7	1.4	.8	.1	.1	.1	.6	.7	.4
Managers, officials, and prop's, exc. farm	2.9	2.9	2.4	3.2	3.8	3.0	4.4	4.3	4.3	3.3	3.8	3.0	3.6	2.9	3.2
Clerical, sales, and kindred workers	26.7	34.5	35.0	37.4	44.0	43.5	26.3	31.7	33.3	36.8	43.6	44.0	40.0	45.2	44.4
Craftsmen, foremen, and kindred workers	.9	1.5	.9	1.5	1.8	1.2	3.6	3.4	2.2	1.4	1.8	1.2	1.3	1.6	1.4
Operatives and kindred workers	11.3	13.7	9.7	16.8	17.8	11.9	17.4	18.2	14.8	16.2	17.5	11.7	8.1	10.3	8.0
Private household workers	15.4	6.8	6.7	12.6	5.9	6.6	13.9	9.1	8.3	13.3	6.1	6.5	16.1	4.9	6.6
Service workers, except private household	16.7	16.7	17.6	15.0	13.4	15.3	10.9	13.4	19.9	14.9	13.5	14.9	13.0	13.7	15.6
Farm laborers and foremen	.4	.5	.4	- -	.1	- -	1.7	1.8	.2	.1	.2	.1	.4	1.0	.5
Laborers, except farm and mine	1.6	.5	.3	1.2	1.0	.5	3.7	.3	.3	1.2	1.0	.5	.5	.4	.6
Occupation not reported	1.2	1.6	3.6	.8	1.2	6.0	1.5	2.1	3.4	.8	1.2	5.5	1.2	4.1	4.7

*Detroit Standard Metropolitan Statistical Area Consists of: Macomb, Oakland and Wayne Counties

*Lansing Standard Metropolitan Statistical Area Consists of: Clinton, Eaton and Ingham Counties

TABLE 1 - OCCUPATION GROUP OF EMPLOYED PERSONS, BY SEX, FOR COUNTIES, 1940, 1950, and 1960

OCCUPATION	Michigan % distribution		
	1940	1950	1960
Both sexes	100.0	100.0	100.0
Professional, technical, and kindred workers	7.8	8.4	11.5
Farmers and farm managers	7.9	4.7	2.2
Managers, officials, and prop's, exc. farm	7.5	7.9	7.3
Clerical, sales, and kindred workers	16.8	19.3	21.3
Craftsmen, foremen, and kindred workers	15.5	16.4	15.4
Operatives and kindred workers	22.6	25.9	22.2
Private household workers	3.3	1.7	2.2
Service workers, except private household	7.1	7.6	8.7
Farm laborers and foremen	3.7	1.8	.9
Laborers, except farm and mine	6.9	5.0	4.0
Occupation not reported	1.0	1.3	4.3
Male	100.0	100.0	100.0
Professional, technical, and kindred workers	6.0	7.1	10.6
Farmers and farm managers	9.9	6.2	3.0
Managers, officials, and prop's, exc. farm	8.6	9.3	9.2
Clerical, sales, and kindred workers	12.2	12.4	13.2
Craftsmen, foremen, and kindred workers	19.4	21.4	21.6
Operatives and kindred workers	24.6	28.6	26.1
Private household workers	.1	.1	.1
Service workers, except private household	5.4	5.5	5.6
Farm laborers and foremen	4.5	2.0	1.1
Laborers, except farm and mine	8.4	6.3	5.5
Occupation not reported	.8	1.1	4.0
Female	100.0	100.0	100.0
Professional, technical, and kindred workers	14.0	12.5	13.5
Farmers and farm managers	.8	.5	.4
Managers, officials, and prop's, exc. farm	3.3	3.9	3.2
Clerical, sales, and kindred workers	33.1	39.7	39.9
Craftsmen, foremen, and kindred workers	1.4	1.7	1.2
Operatives and kindred workers	15.8	18.0	13.5
Private household workers	14.6	6.3	6.8
Service workers, except private household	13.3	13.7	15.7
Farm laborers and foremen	.5	1.2	.5
Laborers, except farm and mine	1.5	.9	.5
Occupation not reported	1.7	1.7	4.9

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Alcona	1,858	93	1,895	303	2.0	36.5	-62.3	89.1	94.9	35.6	133.0	44.0	108.0	-87.3	36.4	-1.5
Alger	3,038	448	2,677	398	-11.9	27.9	-67.0	-23.9	36.6	0.9	2.8	111.1	16.6	21.4	-42.3	-68.4
Allegan	17,101	520	19,923	964	16.5	49.9	-51.7	1.4	56.5	27.4	33.4	43.9	50.9	-32.1	36.4	25.7
Alpena	7,034	439	9,185	865	30.6	71.6	-52.5	39.1	43.4	43.6	52.3	139.3	44.4	-70.9	35.0	146.9
Antrim	3,259	167	3,198	369	-1.9	33.2	-64.6	-3.3	23.7	21.0	145.0	108.0	33.3	-68.4	-30.1	77.7
Arenac	3,222	208	3,198	261	-.74	92.4	-62.9	-11.6	44.6	38.4	77.9	89.6	16.7	-73.9	16.4	217.2
Baraga	2,246	347	1,862	381	-17.1	28.9	-66.8	-5.5	105.0	35.9	-14.6	-14.3	37.6	-88.5	-63.2	506.2
Barry	9,495	285	11,367	603	19.7	42.4	-40.5	-4.1	41.6	22.5	33.1	-1.4	87.7	47.5	464.1	-455.6
Bay	31,546	1,796	36,416	2,917	15.4	50.4	-54.6	18.7	19.0	25.2	9.7	46.8	29.1	-60.7	-15.0	320.9
Benzie	2,618	150	2,547	250	-2.6	38.1	-62.0	-21.3	17.7	18.7	-4.6	31.3	25.9	-33.8	5.0	112.8
Berrien	45,379	1,814	56,355	3,308	24.2	77.6	-34.4	13.9	47.4	16.2	15.6	79.7	48.5	-32.3	7.5	199.0
Branch	10,571	506	12,538	565	18.6	19.7	-45.8	7.5	31.1	23.2	34.2	87.3	95.5	-36.1	33.7	143.0
Calhoun	44,993	2,209	51,063	3,322	13.5	42.6	-39.3	12.6	21.3	0.3	4.0	13.3	20.9	-28.2	6.4	375.1
Cass	10,019	432	12,871	688	28.5	54.5	-49.0	25.9	56.4	31.2	38.2	41.0	62.4	-13.2	-3.0	77.6
Charlevoix	3,967	265	4,320	530	8.9	35.2	-65.4	6.1	18.9	23.5	58.4	45.2	175.6	-60.0	-27.2	194.9
Cheboygan	3,762	492	3,979	595	5.8	35.6	-65.6	34.6	10.2	1.5	13.2	144.7	21.6	-65.2	-9.9	236.5
Chippewa	9,415	702	8,338	1,480	-10.9	27.8	-56.3	10.8	2.9	13.5	-36.5	94.4	-1.3	-60.3	-52.3	159.3
Clare	3,407	257	3,653	203	7.2	52.2	-59.7	0.9	18.2	32.5	27.6	132.6	46.2	-78.2	7.8	275.6
Clinton	10,810	324	13,009	777	20.3	62.1	-38.8	7.9	61.5	43.3	13.9	22.6	65.1	-22.7	-10.4	337.0
Crawford	1,182	110	1,632	133	38.1	25.0	-94.4	27.1	64.5	28.0	53.5	145.8	65.4	--	19.6	106.3
Delta	10,219	695	10,519	1,060	2.9	19.6	-49.9	13.5	20.5	-3.1	20.9	111.8	56.8	-57.5	-42.9	57.2
Dickinson	7,592	1,221	7,683	749	11.9	29.7	-70.5	13.9	2.2	7.6	-10.7	77.5	39.6	-51.8	-39.2	387.7
Eaton	14,527	400	18,047	883	24.2	48.8	-39.0	20.4	63.5	36.8	17.4	93.5	73.5	-43.4	15.5	105.4
Emmet	5,387	453	5,174	622	-4.0	14.1	-63.9	15.1	10.2	-11.7	-20.4	51.2	32.6	-58.3	0.9	103.1
Genesee	108,525	3,283	132,406	9,096	22.0	69.1	-45.1	18.2	30.6	23.3	1.5	55.8	29.0	-36.3	24.4	276.3
Gladwin	3,015	95	3,319	151	10.1	56.0	-58.3	56.3	52.0	24.1	54.9	215.8	65.8	-40.2	-8.8	108.6
Gogebic	8,818	780	7,296	774	-17.3	-7.6	-68.8	-27.9	0.8	-32.2	-20.5	3.2	1.8	-76.4	-52.8	139.1
Grand Traverse	8,868	522	10,173	884	14.7	52.1	-47.0	5.9	24.1	2.2	47.2	32.8	-44.4	-12.0	49.5	35.8
Gratiot	10,988	487	12,552	803	14.2	55.4	-48.5	-3.0	46.4	16.5	65.5	90.6	77.7	-58.3	-15.7	122.4

a Total
b Professional, technical, and kindred workers
c Farmers and farm managers
d Proprietors, managers and officials, exc. farm
e Clerical, sales and kindred workers
f Craftsmen, foremen, and kindred workers
g Operatives and kindred workers
h Domestic service workers
i Service workers, exc. domestic
j Farm laborers (wage workers) and farm foremen
k Laborers exc. farm
l Occupation not reported

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Hillsdale	10,855	413	12,276	543	13.1	41.5	-45.3	16.3	9.1	36.4	49.9	50.9	35.9	-41.0	26.9	135.5
Houghton	11,370	1,193	10,241	1,004	-9.9	21.6	-54.4	-23.9	-2.6	0.7	-19.6	63.8	24.1	-83.3	-53.5	459.5
Huron	11,017	386	10,281	694	-6.7	37.2	-33.2	-9.0	31.3	17.6	29.9	7.8	57.8	-49.6	-39.6	-30.1
Ingham	65,615	3,393	79,222	3,678	20.7	44.9	-40.1	42.9	24.6	9.6	-9.2	110.1	67.5	-11.2	14.7	125.1
Ionia	12,880	560	13,695	780	6.3	39.8	-46.9	8.4	11.7	8.8	12.5	40.2	28.1	-33.2	2.6	309.7
Iosco	3,563	199	4,382	493	23.0	99.6	-49.3	30.0	62.6	6.1	21.1	86.7	91.3	-85.7	10.8	145.7
Iron	5,472	755	5,040	497	-7.7	26.2	-75.0	2.0	7.2	2.8	-10.3	-30.9	22.6	-81.3	2.1	-57.9
Isabella	8,777	384	11,624	722	32.4	83.6	-45.6	19.6	68.4	20.6	41.3	221.5	124.8	-51.1	73.4	150.0
Jackson	38,265	2,307	45,798	3,117	19.7	44.2	-46.0	4.9	29.7	9.5	12.1	14.5	33.8	-14.5	15.1	277.0
Kalamazoo	49,177	1,557	62,712	2,681	27.5	62.9	-33.2	12.6	36.4	11.1	7.3	58.7	36.5	-6.7	10.9	508.5
Kalkaska	1,299	113	1,307	199	0.6	55.8	-74.0	11.4	85.3	32.8	49.7	42.9	68.7	-40.7	32.9	-29.2
Kent	113,966	4,292	132,239	7,612	16.0	48.7	-44.2	1.6	26.2	7.8	0.3	41.6	26.8	-28.5	5.1	275.4
Keweenaw	727	117	615	86	-15.4	0.0	-78.9	-37.0	4.4	8.9	-27.1	--	76.5	--	-36.2	0.0
Lake	1,465	220	1,490	188	1.7	-2.2	-57.5	15.7	45.0	53.2	30.1	136.1	48.5	-81.0	-1.7	45.2
Lapeer	11,315	216	13,308	676	17.6	71.6	-44.4	20.6	29.4	49.1	32.3	165.8	66.9	-30.6	1.5	50.2
Leelanau	2,663	169	2,862	303	7.5	42.5	-55.2	21.0	86.2	24.9	61.8	77.3	85.2	-46.6	28.4	-17.6
Lenawee	23,554	474	26,284	2,020	11.6	59.7	-43.2	5.5	58.3	7.2	14.1	42.0	53.2	-40.5	-23.4	192.6
Livingston	9,325	460	13,200	798	41.6	85.8	-31.4	41.2	76.9	44.2	59.2	156.8	72.1	-22.7	34.1	225.1
Luce	1,867	155	1,944	275	4.1	40.2	-79.5	9.8	6.6	-13.4	-26.5	105.1	35.3	-78.4	-22.7	542.9
Mackinac	2,796	287	2,946	685	5.4	67.5	-50.2	-17.9	66.2	33.0	-10.8	77.1	39.1	-65.9	-36.2	154.1
Macomb	63,360	3,192	133,915	9,797	111.4	330.9	-40.3	128.9	181.1	89.8	59.7	129.1	139.9	-41.4	45.6	324.1
Manistee	6,354	420	6,443	676	1.4	30.6	-62.8	16.2	5.5	10.9	4.5	-4.3	47.9	-55.0	-17.1	124.2
Marquette	15,808	1,126	15,845	1,502	0.2	40.3	-77.1	1.2	-0.3	7.3	-22.1	69.5	39.7	-58.5	-49.6	564.3
Mason	7,323	316	7,347	507	0.3	45.1	-54.3	-2.5	5.2	12.0	9.0	1.7	11.9	-59.6	58.1	255.3
Mecosta	5,771	298	6,756	439	17.1	114.7	-62.2	17.3	56.4	40.5	15.6	70.4	75.7	-30.4	48.8	100.0
Menominee	8,901	508	7,995	529	-10.2	31.4	-50.2	6.9	0.8	19.4	0.6	26.2	15.3	-76.6	-33.7	293.3
Midland	11,504	532	16,297	821	41.7	86.0	-62.4	50.3	50.7	17.2	126.9	59.6	-58.6	14.3	762.1	35.0
Missaukee	2,367	66	2,073	87	-12.4	49.6	-49.5	-7.4	28.4	-8.0	30.5	41.5	33.7	-55.6	27.2	75.0
Monroe	25,512	2,077	32,420	2,807	27.1	60.9	-45.9	23.7	51.3	33.5	19.1	59.6	66.5	-24.2	-0.2	247.2
Montcalm	11,272	393	12,598	530	11.8	45.7	-50.9	-0.9	28.5	23.1	47.7	37.8	26.8	-39.4	12.2	172.9
Montmorency	1,211	105	1,345	164	11.1	26.3	-48.6	23.7	60.3	14.3	74.1	20.5	45.5	-55.3	65.6	100.0
Muskegon	42,043	3,862	51,703	3,274	22.9	53.4	-49.3	6.3	29.1	12.1	13.4	66.7	36.6	-2.1	-3.1	410.2
Newaygo	6,705	305	7,370	727	9.9	55.0	-48.2	23.1	33.6	25.7	24.7	97.3	87.3	-33.9	-4.5	110.3
Oakland	146,981	5,382	240,861	13,165	63.9	146.0	-48.5	85.4	92.9	38.4	17.6	69.4	74.0	-39.7	13.8	372.1
Oceana	5,220	377	4,951	584	-5.2	25.1	-51.6	-22.2	17.6	155.6	27.0	-25.6	67.5	-38.6	-5.1	35.4

TABLE 2 - CIVILIAN LABOR FORCE STATUS AND PERCENTAGE CHANGE IN MAJOR OCCUPATIONS, MICHIGAN: 1950-1960, BY COUNTY

County	Employment Status				Percentage Change in Major Occupations, 1950-1960											
	1950		1960													
	Employed	Unemployed	Employed	Unemployed	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
Ogemaw	2,796	99	2,772	359	-0.9	-4.0	-63.7	-11.4	30.3	30.8	96.4	102.9	67.5	-55.9	16.4	34.8
Ontonagon	2,850	601	3,145	452	10.4	42.6	-60.0	0.4	31.5	107.3	59.4	131.3	45.3	-63.8	-48.2	143.2
Osceola	4,788	206	4,644	230	-3.0	19.3	-56.3	13.7	-1.5	14.2	56.7	1.6	29.4	-62.3	21.0	171.1
Oscoda	916	46	1,086	78	18.6	134.4	-46.7	43.4	81.7	6.2	7.1	0.0	46.7	-85.5	129.6	-20.0
Otsego	2,118	107	2,420	235	14.3	2.4	-58.4	29.0	36.0	42.1	59.0	113.0	80.7	-86.8	-29.1	132.1
Ottawa	27,293	770	34,583	1,359	26.7	74.8	-42.4	15.3	47.7	32.3	22.7	37.3	75.4	-33.0	20.5	67.4
Presque Isle	3,852	174	4,151	234	7.8	53.4	-47.6	42.0	47.6	18.9	56.7	-27.4	93.1	-55.5	-18.8	-37.1
Roscommon	1,823	176	2,231	252	22.4	71.5	-57.5	39.5	69.2	-2.8	18.3	41.7	-10.1	-66.7	-8.7	112.5
Saginaw	57,155	2,378	64,463	3,765	12.8	51.4	-46.5	2.5	27.5	4.8	11.1	33.6	34.3	-45.5	-20.1	161.1
St. Clair	32,600	1,652	35,039	3,130	7.5	48.4	-43.2	-1.5	18.4	3.9	-4.0	92.5	39.8	-47.5	-57.0	162.3
St. Joseph	13,498	530	16,545	720	22.6	32.8	-38.4	3.7	17.2	16.3	34.4	34.5	21.6	-51.8	16.0	999.2
Sanilac	10,727	370	10,930	648	1.9	35.4	-39.1	10.1	4.3	35.3	62.4	-20.7	54.9	-32.4	11.9	170.7
Schoolcraft	2,705	342	2,507	504	-7.3	-9.4	-55.6	0.0	-4.3	-10.6	-8.7	8.5	28.2	-33.8	-16.3	141.2
Shiawassee	17,246	449	18,899	1,176	7.6	46.2	-48.8	-0.6	29.3	23.9	4.2	83.9	41.8	-43.3	8.1	53.9
Tuscola	12,358	358	13,865	709	11.2	45.7	-42.9	-3.8	57.3	45.4	37.6	86.5	55.9	-31.6	7.6	34.0
Van Buren	14,200	699	17,179	1,034	20.9	67.4	-46.1	--	37.9	30.4	34.5	63.8	37.1	10.0	12.6	409.8
Washtenaw	48,110	1,926	65,532	3,312	36.2	75.8	-26.5	29.7	41.7	12.6	12.1	45.3	45.0	-19.7	5.6	275.5
Wayne	983,003	69,209	953,959	88,871	-3.0	26.1	-45.5	-20.7	5.2	-14.7	-22.6	27.6	8.9	-36.2	-20.3	361.0
Wexford	6,372	384	6,284	435	-1.4	13.0	-68.9	1.4	18.4	-0.3	-2.2	12.2	51.0	-74.0	-19.3	58.4
Detroit(S.M.S.A.*)	1,193,344	77,783	1,328,735	111,833	21.2	46.4	39.2	35.2	31.3	18.0	-1.6	91.5	37.7	24.6	10.7	141.9
Lansing(S.M.S.A.*)	90,952	4,117	110,278	5,338	11.3	54.6	-44.3	-0.2	22.6	-0.3	-13.2	37.1	20.7	-39.2	-13.9	359.8

* Detroit Standard Metropolitan Statistical Areas combines Macomb, Oakland, and Wayne counties.
* Lansing Standard Metropolitan Statistical Areas combines Clinton, Eaton, and Ingham counties.

Sources: U.S. Bureau of the Census. U.S. Census of Population: 1960. General Social and Economic Characteristics, Michigan. Final Report PC(1)-24C. U.S. Government Printing Office, Washington, D.C., Table 73; U.S. Bureau of the Census. U.S. Census of Population: 1950. Vol. II, Characteristics of the Population, Part 22, Michigan, Chapter B. U.S. Government Printing Office, Washington, D.C., 1952, Table 43.

Appendix B

TABLE 1

AGRICULTURAL COURSES FOR MICHIGAN K-12 SCHOOLS FOR GRADES 7-12, BY NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

GRADE LEVEL

Course	8 S[2]	8 C[3]	8 H[4]	9 S	9 C	9 H	10 S	10 C	10 H	11 S	11 C	11 H	12 S	12 C	12 H	8-9 S	8-9 C	8-9 H	9-10 S	9-10 C	9-10 H	10-11 S	10-11 C	10-11 H
Farm Crops				21	1	99.75	22	1	93.45															
Vocational Agriculture[5]	84	4	357.00	2545	147	12223.75	2403	165	11473.00	842	56	4004.00	811	59	3910.25	28	1	133.00	607	33	2935.50	330	17	1595.25
Soil Science				27	1	128.25													26	1	84.50			
Conservation[6]	22	1	82.50	35	1	192.50	35	2	161.75	6	1	19.50	20	1	95.00				17	1	55.25	16	1	60.00
Animal Husbandry				19	1	247.00	16	1	76.00	14	1	59.50							18	1	85.50			
Farm Mechanics	39	2	78.00				435	29	2035.75	123	10	559.75	41	3	178.75				26	1	143.00			
Farm Management													24	2	102.00									
Unknown													2	1	9.50									
Total	145	7	517.50	2647	151	12891.25	2911	198	13840.00	985	68	4642.75	898	66	4295.50	28	1	133.00	694	37	3303.75	346	18	1655.25

Course	11-12 S	11-12 C	11-12 H	9-11 S	9-11 C	9-11 H	9-12 S	9-12 C	9-12 H	10-12 S	10-12 C	10-12 H	Grade Unknown S	Grade Unknown C	Grade Unknown H	Totals S	Totals C	Totals H
Farm Crops																43	2	193.25
Vocational Agriculture	3509	143	16888.50	30	2	142.50	219	15	997.75	277	15	1332.00	593	33	2989.25	12278	690	58981.75
Soil Science																53	2	212.75
Conservation	120	5	496.50				65	3	285.75	225	9	954.25	92	4	388.00	653	29	2791.00
Animal Husbandry																67	4	468.00
Farm Mechanics	262	17	1206.00				15	1	82.50	82	6	390.00	319	21	1512.75	1342	90	6186.50
Farm Management	54	4	256.50										30	2	112.50	108	8	471.00
Unknown																2	1	9.50
Total	3945	169	18847.50	30	2	142.50	299	19	1366.00	584	30	2676.25	1034	60	5002.50	14546	826	69313.75

[1] Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2] Students

[3] Classes

[4] Hours per week

[5] This category also includes "General Agricultural" courses.

[6] Usually non-vocational in nature.

TABLE 2

BUSINESS EDUCATION COURSES FOR MICHIGAN K-12 SCHOOLS FOR GRADES 7-12, BY NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

GRADE LEVEL

Course	7			8			9			10			11			12			7-8			7-9		
	S[2]	C[3]	H[4]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping							30	2	127.50	7202	244	29939.25	3821	155	17213.75	1912	84	8989.75	25	1	137.50	21	1	99.75
Business Economics																253	9	1188.00						
Business English										120	6	570.00	51	3	253.50	1086	44	4990.75						
Business Law										152	4	635.75	278	9	1270.50	2336	84	10065.50						
Business Mathematics	170	6	722.50	269	11	1177.75	857	35	3991.50	6933	225	27172.00	304	10	1430.25	350	14	1599.75						
Business Organization							94	4	368.00	263	9	1368.50	89	3	333.75	112	4	505.00						
Co-Op Training for Distributive Occupations													17	1	80.75	572	21	3164.75						
Co-Op Training for Office Occupations													31	1	116.25	514	16	3283.25						
Distributive Education										67	2	280.25	208	9	988.00	271	10	1185.50						
Economic Geography	63	2	299.25				35	2	129.75	104	4	444.50	106	3	469.50									
Filing										755	25	3019.25				197	8	880.75						
General Business				1460	47	6132.75	10867	375	46725.75	2177	82	9895.00	34	1	161.50	54	2	273.75						
Merchandising Information													12	1	66.00	156	5	641.00						
Office Machines													296	11	1198.50	1920	89	6281.50						
Office Practices	7	1	26.25				20	1	95.00				354	17	1715.00	3550	180	16466.75						
Retailing	32	1	152.00				25	2	106.25	13	1	61.75	552	21	2567.75	775	30	3660.00						
Secretarial Practices													18	2	78.50	289	16	1371.75						
Shorthand	16	2	76.00				18	1	85.50	367	17	1643.25	7947	341	35064.50	4141	237	18783.25	15	1	82.50			
Notehand (Personal Use)																22	7	104.50						
Transcription	32	1	120.00										279	14	1263.00	1670	74	7185.75						
Typewriting	207	7	699.75	1911	60	7728.00	9230	300	39613.00	17238	576	72297.00	10037	381	44069.75	4291	191	19788.75	29	1	123.25			
Introduction to Distribution							57	2	254.75															
Unknown										310	9	1472.50	933	30	4414.75	304	13	1444.00						
Totals	527	20	2095.75	3640	118	15038.50	21233	724	91497.00	35701	1204	148799.00	25367	1013	112755.50	24775	1138	111854.00	69	3	343.25	21	1	99.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Students

[3]Classes

[4]Hours per week

TABLE 2 - Continued

GRADE LEVEL

Course	8-9 S	C	H	8-10 S	C	H	8-11 S	C	H	9-10 S	C	H	9-11 S	C	H	9-12 S	C	H	10-11 S	C	H	10-12 S	C	H	11-12 S	C	H	Unknown S	C	H	Total S	C	H
Accounting and Bookkeeping													114	4	632.50	77	3	401.75	1027	41	4679.75	2327	83	11482.25	5126	214	23503.25	4684	185	22490.00	26366	1017	119697.00
Business Economics																			33	1	156.75	23	1	109.25	188	7	746.00	25	1	118.75	522	19	2318.75
Business English																									91	6	423.25	961	34	4056.25	2309	93	10293.75
Business Law																26	1	123.50				212	9	985.75	491	21	2223.00	634	25	3147.00	4129	153	18451.00
Business Mathematics							21	1	99.75	95	4	429.25	31	1	147.25	330	13	1607.25	160	6	759.50	722	24	3520.75	460	17	2228.75	1093	39	5383.75	11795	406	50270.00
Business Organization																						300	11	1650.00	69	3	342.50	77	3	386.75	1004	37	4954.50
Cooperative Training for Distributive Occupations																						9	1	72.00	93	5	409.75	364	15	1716.25	1055	43	5443.50
Cooperative Training for Office Occupations																									238	10	943.00	881	40	5332.00	1664	67	9674.50
Distributive Education																						26	1	123.50	225	9	927.25	60	3	285.00	857	34	3789.50
Economic Geography																20	1	95.00	33	2	147.75	120	5	633.00	52	2	242.25	416	16	1804.25	949	37	4265.25
Filing				38	1	142.50													55	2	247.50	134	5	582.00	933	31	3580.75	102	4	411.50	2214	76	8864.00
General Business										644	25	2832.00				625	24	2758.25	447	17	2110.75	640	27	3155.25	215	9	1025.00	2425	84	11194.00	19588	693	86264.00
Merchandising Information																						28	1	133.00	174	5	889.50	28	1	182.00	398	13	1911.50
Office Machines																			30	1	112.50	21	1	99.75	2260	84	8819.50	695	43	3382.25	5222	229	19894.00
Office Practices																						13	1	52.25	880	49	3975.50	818	43	3906.50	5642	292	26237.25
Retailing																34	1	161.50	28	1	105.00	105	4	498.75	1763	63	6900.75	679	24	3139.25	4006	148	17353.00
Secretarial Practices																									15	1	71.25	143	8	763.50	465	27	2285.00
Shorthand										14	1	66.50				35	2	159.25	268	13	1310.75	309	12	1386.00	3799	196	17866.75	2496	115	11861.25	19425	938	88385.50
Notehand (Personal Use)																									347	12	1448.25				369	19	1552.75
Transcription																						17	1	72.25	95	5	430.50	789	39	3554.00	2882	134	12625.50
Typewriting	819	25	3245.75							677	28	2921.25	247	8	1359.00	1813	63	8476.00	2993	118	13774.50	9955	350	47638.25	8928	377	41325.75	13145	476	62854.00	81520	2961	365914.00
Introduction to Distribution																															57	2	254.75
Unknown																						13	1	61.75							1560	53	7393.00
Totals	819	25	3245.75	38	1	142.50	21	1	99.75	1430	58	6249.00	392	13	2138.75	2960	108	13782.50	5074	202	23404.50	14974	538	72255.75	26442	1126	118322.50	30515	1198	145968.25	193998	7491	868091.50

TABLE 3

HOME ECONOMICS COURSES FOR MICHIGAN K-12 SCHOOLS FOR GRADES 7-12, BY NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

GRADE LEVEL

Course	Grade Unknown S[2]	C[3]	H[4]	7 S	C	H	8 S	C	H	9 S	C	H	10 S	C	H	11 S	C	H	12 S	C	H	7-8 S	C	H
Care & Guidance of Children	54	2	256.50										26	1	84.50	88	3	286.00	104	4	372.50			
Clothing and Textiles	480	22	2551.75	494	20	2134.25	2586	98	11794.00	1305	53	5913.25	660	32	2776.25	172	9	931.75	143	7	782.50	341	17	1438.75
Commercial Cooking Baking, etc.[6]	225	15	1068.75				29	2	157.00	49	3	208.25							12	1	96.00			
Consumer Ed. & Housing							55	2	270.00															
Cosmetology[6]																50	2	400.00	49	2	392.00			
Foods & Nutrition	257	16	1330.00	519	19	1077.75	1756	71	8048.75	1055	47	4640.50	779	35	3918.25	334	14	1931.50	181	7	871.25	142	7	592.50
Health[5]	131	5	631.25				51	2	219.25															
Home & Family Living	1627	65	8016.50	234	11	1111.50	1517	49	6548.50	409	16	1806.75	359	12	1805.25	206	7	822.00	3240	132	14281.00			
Homemaking & Health	4787	196	23371.00	7256	315	29200.00	16802	777	70428.50	15075	766	70130.25	7656	436	32860.50	2542	137	11365.75	1899	111	9142.00	1137	53	5076.25
Home Furnishings & Equipment	32	5	612.25				70	3	352.00	41	2	194.75	30	2	150.00	124	5	454.00	1161	42	4305.25			
Hospital Service[6]																			51	1	191.25			
Unclassified or Unknown	40	2	190.00	294	10	1382.50	160	5	760.00	86	3	464.50	25	1	81.25				62	3	281.00			
Total	7633	328	38028.00	8797	375	34906.00	23026	1009	98578.00	18020	900	83358.25	9535	519	41676.00	3516	177	16191.00	6902	310	30714.75	1620	77	7107.50

Course	7&9 S	C	H	8-9 S	C	H	8-10 S	C	H	9-10 S	C	H	9-11 S	C	H	9-12 S	C	H	10-11 S	C	H	10-12 S	C	H	11-12 S	C	H	Total S	C	H
Care & Guidance of Children																31	1	100.75				289	10	976.25	408	14	1460.00	1000	35	3536.50
Clothing and Textiles	93	3	427.75							187	8	925.25	182	8	870.75	1384	53	5668.00	198	9	894.50	1298	52	6153.75	512	24	2513.50	10035	425	45776.00
Commercial Cooking Baking, etc.				24	1	102.00				42	2	236.25	24	1	78.00				64	4	459.50	66	2	328.25	33	2	264.00	568	33	2998.00
Consumer Ed. & Housing																									10	1	55.00	65	3	325.00
Cosmetology				74	3	351.50	44	1	352.00	32	1	176.00	24	1	192.00	795	32	3598.75	111	5	487.00	38	2	304.00				137	6	1096.00
Foods & Nutrition																						1077	49	5434.50	161	10	849.25	7341	318	33851.50
Health																												182	7	850.50
Home & Family Living										31	1	170.50	20	1	65.00	108	4	428.25				480	18	2025.25	2331	85	9519.50	10562	401	46600.00
Homemaking & Health				363	12	1632.00				835	45	4019.50	145	7	688.75	1201	58	5567.25	710	40	3357.25	2259	116	10419.50	4528	272	22832.00	67195	3341	300040.50
Home Furnishings & Equipment																						202	8	730.75	200	7	777.50	1860	74	7576.50
Hospital Service																						151	4	971.50				202	5	1162.75
Unclassified or Unknown																42	2	231.00				22	1	176.00				731	27	3566.25
Total	93	3	427.75	461	16	2085.50	44	1	352.00	1127	57	5527.50	395	18	1894.50	3561	150	15594.00	1083	58	5198.25	5882	262	27519.75	8183	415	38270.75	99878	4675	447429.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Students

[3]Classes

[4]Hours per week

[5]Usually not considered as a specific Home Economics course, but taught in Physical Education or Science.

[6]Taught in the Trade & Industrial curriculum.

TABLE 4

TRADE AND INDUSTRIAL COURSES FOR MICHIGAN K-12 SCHOOLS FOR GRADES 7-12, BY NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Grade Level

Course*	Unknown[2]			7			8			9			10			11			12		
	S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Industrial Arts	467	21	2001.25	1999	71	8392.00	4363	192	20101.25	2093	95	9504.25	805	39	3801.50	518	26	2563.50	245	14	1321.25
General Shop	3525	184	17156.25	3578	161	14686.25	9476	445	41550.25	9904	496	46641.75	3106	173	14988.25	921	57	4264.50	589	40	2732.75
Wood Shop	2152	102	10845.25	963	40	4142.75	2679	107	11488.00	2423	107	10834.50	2171	101	11084.00	620	33	3055.75	164	10	794.00
Bench Wood																					
Cabinet & Furniture Making	8	1	38.00										51	2	242.25	32	2	164.00			
Machine Woodwork	74	5	313.50										46	3	201.50	35	2	166.25			
Pattern Making													104	7	494.00	25	2	118.75	7	1	33.25
Carpentry (Building Const.)	39	3	185.25										91	3	490.75	88	4	551.00	77	4	404.00
Building Materials																32	1	136.00			
Residential Development																					
Metal Shop & Metal Fitting	1394	76	7230.75	308	14	1694.00	2054	87	8746.25	3172	122	13661.50	1477	64	6797.75	332	18	1612.25	117	8	569.00
Bench Metal													136	5	508.75						
Sheet Metal	23	1	126.50																		
Foundry													23	3	109.25	32	2	152.00	13	1	61.75
Machine Hand Tools	13	1	48.75										81	4	384.75				41	2	174.75
Machine Shop	875	52	4862.50				184	9	773.75	516	22	2648.50	1172	58	6388.50	601	29	3111.75	362	21	1831.00
Machine Metal Work																26	1	110.50	60	3	52.00
Machine Working	90	6	427.50																		
Power Machinery	189	11	915.00							222	11	943.50	119	8	565.25	130	9	653.00	231	11	1087.50
Welding	475	24	2252.00										83	6	371.75	76	6	459.50	106	6	503.50
Electricity	81	4	384.75				82	5	426.00	92	5	458.00	507	22	2506.75	193	9	1302.50	240	9	1224.50
Radio Electronics	43	3	190.25	19	1	80.75	36	2	153.00	22	1	104.50	25	3	118.75	39	3	185.25			
Electrical Mechanics													89	4	578.50	61	3	396.50	46	2	299.00
Drafting	1418	62	6896.50	594	27	2601.25	3074	110	13876.00	3737	141	15828.50	3061	123	13117.50	927	41	3920.50	917	42	3780.75
Mechanical Drawing	3235	153	15673.50	582	25	2531.25	1112	45	5173.50	2406	109	10981.50	2417	113	11153.25	1013	51	4756.00	318	24	1662.00
Blue Print Reading	155	7	784.00	112	4	476.00				53	2	251.75	107	5	394.75	20	1	75.00	52	2	237.00
Architectural Drawing	170	11	901.00							19	1	90.25	184	9	850.00	209	11	1000.75	63	4	267.25
Machine Drafting & Drawing	100	5	505.00										165	6	735.75	136	6	609.25	101	5	479.75
Tool Design																			18	1	117.00
Graphic Arts							1290	43	5767.00	303	13	1478.75	77	5	389.75	67	5	343.00			
Printing & Print Design	519	30	2443.75	265	10	1070.25	696	23	3077.50	191	10	802.00	505	27	2433.00	313	19	1610.50	159	11	876.25
Photography																					
Total	15045	762	74181.25	8420	353	35674.50	25046	1068	111132.50	25153	1135	114229.25	16602	793	78706.25	6446	341	31318.00	3926	221	18508.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Grade level not reported.

[3]Students.

[4]Classes.

[5]Hours.

*Note: See Table 3 for Commercial Cooking, Baking, etc.; Cosmetology; and Hospital Service.

TABLE 4 - Continued

GRADE LEVEL

Course	7-8 S	C	H	7&9 S	C	H	7-9 S	C	H	8-9 S	C	H	8-10 S	C	H	8-11 S	C	H	8-12 S	C	H	9-10 S	C	H	9-11 S	C	H
Industrial Arts																												
General Shop	159	6	710.75							107	4	408.25										97	6	559.25	36	2	204.25
	1353	63	6004.75	45	2	213.75	48	2	215.50	200	9	1007.25	92	4	536.25							892	47	4254.25			
Wood Shop																												
Bench Wood	22	1	93.50				28	2	119.00	212	9	943.50				69	3	454.25				129	5	639.00	175	7	1047.75
Cabinet & Furniture Making																						52	3	195.00	30	2	240.00
Machine Woodwork																												
Pattern Making																												
Carpentry (Building Const.)																												
Building Materials																												
Residential Development																												
Metal Shop & Metal Fitting	20	1	95.00				42	2	178.50	107	4	467.75																
Bench Metal																						81	4	423.25	76	4	453.00
Sheet Metal																						85	4	293.25	14	1	52.50
Foundry																												
Machine Hand Tools																												
Machine Shop																												
Machine Metal Work																70	3	462.25				37	2	224.50	26	1	169.00
Machine Working																												
Power Machinery																												
Welding																												
Electricity																24	1	192.00				25	1	200.00			
Radio Electronics																												
Electrical Mechanics																									28	1	224.00
Drafting	22	1	93.50	24	1	114.00	27	1	114.75	223	7	965.75				25	1	200.00	16	1	128.00	425	18	1542.25	533	20	2125.50
Mechanical Drawing	64	3	261.50							66	2	280.50	71	3	266.25	49	2	183.75				165	7	764.75	220	8	1025.50
Blue Print Reading																												
Architectural Drawing																												
Machine Drafting & Drawing																												
Tool Design																												
Graphic Arts																												
Printing & Print Design	20	1	50.00							63	2	281.25																
Photography										82	4	348.50																
Total	1660	76	7309.00	69	3	327.75	145	7	627.75	1060	41	4702.75	163	7	802.50	237	10	1492.25	16	1	128.00	1988	97	9095.50	1138	46	5541.50

TABLE 4 - Continued

GRADE LEVEL

Course	9-12 S	9-12 C	9-12 H	10-11 S	10-11 C	10-11 H	10-12 S	10-12 C	10-12 H	11-12 S	11-12 C	11-12 H	Total S	Total C	Total H
Industrial Arts	65	3	387.50	85	5	411.50	256	11	1174.75	389	21	1800.50	11684	516	53341.75
General Shop	515	26	2457.25	599	34	2905.50	1080	63	5006.25	1861	112	8549.50	37784	1918	173170.25
Wood Shop	906	42	4151.75	201	10	933.75	1576	73	7423.75	789	41	3754.25	15279	693	71804.75
Bench Wood													82	5	435.00
Cabinet & Furniture Making							47	2	223.25	93	5	502.00	231	12	1169.50
Machine Woodwork										88	3	572.00	243	13	1253.25
Pattern Making	36	2	94.50				15	1	120.00				187	13	860.50
Carpentry (Building Const.)	16	1	60.00							39	2	238.50	350	17	1929.50
Building Materials							15	1	63.75				47	2	199.75
Residential Development										24	1	192.00	24	1	192.00
Metal Shop & Metal Fitting	392	17	2079.00	235	9	1123.50	839	43	4020.25	555	32	2721.00	11201	505	51872.75
Bench Metal	16	1	60.00										251	11	914.50
Sheet Metal										31	1	147.25	54	2	273.75
Foundry													68	6	323.00
Machine Hand Tools													135	7	608.25
Machine Shop	516	29	2538.25	272	12	1506.00	1237	55	7440.25	1190	61	7021.75	7058	354	38978.00
Machine Metal Work				17	1	63.75				37	2	114.75	140	7	341.00
Machine Working				25	2	93.75				35	2	192.50	150	10	713.75
Power Machinery				52	2	221.00	51	3	242.25	333	15	1771.00	1327	70	6398.50
Welding	259	12	1420.00				396	20	2225.00	207	12	1109.00	1651	88	8732.75
Electricity	48	2	228.00	119	5	735.00	395	17	2037.25	366	21	1897.25	2151	100	11424.00
Radio Electronics	56	2	266.00				215	9	1045.00	82	5	368.50	537	29	2512.00
Electrical Mechanics				52	1	416.00	44	2	352.00	46	2	336.50	338	14	2378.50
Drafting	1618	61	6900.00	541	22	2415.50	2156	90	9048.25	1509	71	7089.75	20847	840	90758.25
Mechanical Drawing	517	24	2371.75	604	28	2815.00	1366	70	6442.25	2038	124	9512.75	16243	791	75855.00
Blue Print Reading				22	1	121.00	68	3	374.00	13	1	42.25	602	26	2755.75
Architectural Drawing	83	4	341.75				69	3	326.00	228	12	1032.00	1025	55	4809.00
Machine Drafting & Drawing										55	3	316.25	557	25	2646.00
Tool Design										20	1	160.00	38	2	277.00
Graphic Arts							24	1	114.00	22	2	104.50	1846	71	8478.25
Printing & Print Design	272	19	1301.00	16	1	76.00	690	39	3365.75	435	27	2577.25	4163	221	20031.75
Photography							15	1	71.25				15	1	71.25
Total	5315	245	24656.75	2840	133	13837.25	10554	507	51115.25	10485	579	52123.00	136308	6425	635509.25

TABLE 4 - Continued

GRADE LEVEL

Course	Unknown S	C	H	7 S	C	H	8 S	C	H	9 S	C	H	10 S	C	H	11 S	C	H	12 S	C	H	8-11 S	C	H	9-10 S	C	H
Paint Shop	23	1	184.00																								
Painting & Decorating																											
Commercial Art																											
Auto Mechanics & Shop	697	50	3667.00										720	33	3928.75	792	38	4305.25	786	40	4004.50				149	7	798.50
Auto Theory	36	2	153.00																34	1	161.50						
Bump & Paint Shop - Auto Body																											
Industrial Mechanics										219	7	883.50	142	5	518.00				43	2	292.00				80	3	520.00
Power Plant										25	1	81.25							34	6	148.75						
Industrial Hydraulics																											
Air Conditioning & Refrigeration																77	3	500.50									
Astronautics													69	3	448.50	32	2	104.00	27	1	175.50						
Air Craft Power Plant																											
Air Frame																			5	1	18.75						
Plastics	57	3	270.75				40	2	190.00																		
Shoe Repair	19	2	152.00																								
Automation																			23	1	184.00						
Applied Physics																69	5	327.75									
Shop Mathematics & Industrial Construccion Mathematics	434	18	2010.25	55	2	233.75				175	7	734.00	1229	49	5626.75	133	5	487.25	18	1	85.50	24	1	90.00			
Co-Op Training - T & I	140	11	876.25																174	11	1115.25						
Misc. - (Industrial History, Related Social Science)	25	1	93.75										21	1	68.25												
Unknown or Unclassified	92	4	437.00	85	3	361.25	16	1	76.00	17	1	80.75							11	1	52.25						
Total	1523	92	7844.00	140	5	595.00	56	3	266.00	436	15	1779.50	2181	91	10590.25	1103	53	5724.75	1155	65	6238.00	24	1	90.00	229	10	1318.50

TABLE 4 - Continued

GRADE LEVEL

Course	9-11 S	C	H	9-12 S	C	H	10-11 S	C	H	10-12 S	C	H	11-12 S	C	H	Total S	C	H
Paint Shop																23	1	184.00
Painting & Decorating										46	2	368.00				46	2	368.00
Commercial Art				40	2	320.00										40	2	320.00
Auto Mechanics & Shop				330	15	1662.75	90	4	314.50	976	48	4748.50	947	52	5232.75	5487	287	28662.50
Auto Theory																70	3	314.50
Bump & Paint Shop - Auto Body				59	3	395.50				22	1	82.50	68	4	544.00	149	8	1022.00
Industrial Mechanics	49	2	356.00	33	1	214.50				187	7	835.00	24	1	78.00	777	28	3697.00
Power Plant										43	2	344.00				102	9	574.00
Industrial Hydraulics																77	3	500.50
Air Conditioning & Refrigeration										16	1	104.00				16	1	104.00
Astronautics													30	1	195.00	158	7	923.00
Air Craft Power Plant													28	1	224.00	28	1	224.00
Air Frame										21	1	168.00	10	2	80.00	36	4	266.75
Plastics																97	5	460.75
Shoe Repair																19	2	152.00
Automation																23	1	184.00
Applied Physics																69	5	327.75
Shop Mathematics & Industrial Construction Mathematics	79	3	347.00	301	12	1257.25	99	5	377.25	404	15	1745.00	147	6	598.25	3098	124	13592.25
Co-Op Training - T & I										26	3	123.50	51	2	343.00	391	27	2458.00
Misc. - (Industrial History, Related Social Science)																46	2	162.00
Unknown or Unclassified													45	3	213.75	266	13	1221.00
Total	128	5	703.00	763	33	3850.00	189	9	691.75	1741	80	8518.50	1350	72	7508.75	11018	535	55718.00

TABLE 5

SUMMARY OF EDUCATIONAL BACKGROUND OF VOCATIONAL EDUCATION TEACHERS IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 ACCOEDING TO CURRICULUM AND CERTIFICATION BY YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Advanced Degree

Curriculum & Certificate	Major-Minor[2]									Neither[3]								
	Less than 5 yrs. experience			5-10 yrs. experience			10 or more yrs. experience			Less than 5yrs. experience			5-10 yrs. experience			10 or more yrs. experience		
	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Business Education																		
Provisional	4644	154	19198.25							272	10	1241.50						
Permanent				11572	418	48279.50	18975	657	77040.50				576	21	2956.25	901	36	4410.25
Life	437	14	1705.75	235	10	881.25	9976	354	41712.75				14	1	77.00	1412	57	6750.75
Special				178	8	728.50							111	4	610.50	114	4	427.50
Unreported																		
Total	5081	168	20904.00	11985	436	49889.25	28951	1011	118753.25	272	10	1241.50	701	26	3643.75	2427	97	11588.50
Home Economics																		
Provisional	1962	78	8959.50							112	6	616.00						
Permanent				3034	124	12544.00	8261	325	36436.00							500	18	2214.75
Life				202	10	865.75	2260	97	8646.50							773	30	3772.75
Special	71	4	298.25	172	6	960.00	189	8	711.25							16	1	76.00
Unreported																		
Total	2033	82	9257.75	3408	140	14369.75	10710	430	45793.75	112	6	616.00				1289	49	6063.50
Trade & Industrial																		
Provisional	3401	140	15757.75							139	5	614.25						
Permanent				9384	415	44870.00	15552	633	71131.00				940	47	4929.25	801	38	4800.50
Life	6305	270	28750.50													650	28	2894.75
Special				90	3	427.50	17	1	136.00									
Unreported																		
Total	9706	410	44508.25	9474	418	45297.50	15569	634	71267.00	139	5	614.25	940	47	4929.25	1451	66	7695.25
Vocational Agriculture																		
Provisional	100	5	433.00															
Permanent				319	22	1509.50	365	18	1805.00									
Life							10	1	42.50									
Special	173	9	732.75															
Unreported																		
Total	273	14	1165.75	319	22	1509.50	375	19	1847.50									
Grand Total	17093	674	75835.75	25186	1016	111066.00	55605	2094	237661.50	523	21	2471.75	1641	73	8573.00	5167	212	25347.25

[1]Student hours were computed by multiplyirg total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or miror.

[4]Students.

[5]Classes.

[6]Hours.

TABLE 5 - Continued

Regular Degree

Curriculum & Certificate	Major-Minor: Experience not indicated S	C	H	Less than 5 yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Experience not indicated S	C	H	Neither: Less than 5yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H
Business Education																									
Provisional				21348	810	92544.50										666	28	3066.50							
Permanent							5426	210	23642.50	5246	203	23352.00							70	3	322.00	367	11	1740.50
Life				472	17	2163.25	925	35	4241.00	7124	292	31514.50							176	5	748.00	677	27	3014.75
Special	49	2	232.75	1666	73	7864.00	422	16	1890.00	89	4	424.50				548	23	2876.00	107	4	588.50	6	2	19.50
Unreported																									
Total	49	2	232.75	23486	900	102571.75	6773	261	29773.50	12459	499	55291.00				1214	51	5942.50	353	12	1658.50	1050	40	4774.75
Home Economics																									
Provisional				9968	459	42296.00										890	38	4223.50							
Permanent							6213	272	27475.75	5754	254	23890.00	42	2	178.50				227	10	1248.50	95	5	443.75
Life				397	20	1969.50	1056	51	4935.25	6634	309	28472.00				74	3	351.50	37	1	157.25	441	22	1968.50
Special	176	8	796.00	1441	74	6619.25	553	27	2626.75	108	6	405.00				170	8	935.00				28	2	154.00
Unreported																									
Total	176	8	796.00	11806	553	50884.75	7822	350	35037.75	12496	569	52767.00	42	2	178.50	1134	49	5510.00	264	11	1405.75	564	29	2566.25
Trade & Industrial																									
Provisional				18853	856	86055.50										567	31	2891.75							
Permanent							5766	264	26577.50	4666	218	21243.50	64	3	337.00				315	13	1772.50	370	17	1907.75
Life				165	6	783.75	73	4	476.75	5533	256	25232.75										783	33	3997.25
Special	96	5	396.00	516	23	2798.50	277	12	1315.75	68	4	544.00										12	2	63.75
Unreported																									
Total	96	5	396.00	19534	885	89637.75	6116	280	28370.00	10267	478	47020.25	64	3	337.00	567	31	2891.75	315	13	1772.50	1165	52	5968.75
Vocational Agriculture																									
Provisional				1330	86	6166.25																			
Permanent							430	30	1940.50	320	20	1390.50										34	2	178.75
Life							40	3	190.00	267	13	1432.50													
Special				243	14	1167.50	13	1	61.75																
Unreported																									
Total				1573	100	7333.75	483	34	2192.25	587	33	2823.00										34	2	178.75
Grand Total	321	15	1424.75	56399	2438	250428.00	21194	925	95373.50	35809	1579	157901.25	106	5	515.50	2915	131	14344.25	932	36	4836.75	2813	123	13488.50

TABLE 5 - Continued

Curriculum & Certificate	Non-Degree: Major-Minor: Experience not indicated S	C	H	Less than 5yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs experience S	C	H	Non-Degree: Neither: Less than 5 yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs experience S	C	H	Degree Unreported: Degree Unreported: Experience not indicated S	C	H	Total S	C	H
Business Education																												
Provisional																										26930	1002	116050.75
Permanent																										43133	1559	181743.50
Life				90	3	427.50	207	6	834.00	726	32	3615.00				56	2	266.00								22527	855	97951.50
Special				342	13	1340.75	115	6	488.75	64	5	272.00				186	8	883.50								3997	172	18646.75
Unreported																									97411	3903	453688.25	97411	3903	453688.25
Total				432	16	1768.25	322	12	1322.75	790	37	3887.00				242	10	1149.50							97411	3903	453688.25	193998	7491	868080.75
Home Economics																												
Provisional																										12932	581	56095.00
Permanent																										24126	1010	104431.25
Life										122	7	490.00														11996	550	51629.00
Special	242	13	1427.00	138	8	643.50	63	3	290.25	222	11	841.50	82	4	498.75				41	3	218.00					3712	186	17500.50
Unreported																									47112	2348	217773.75	47112	2348	217773.75
Total	242	13	1427.00	138	8	643.50	63	3	290.25	344	18	1231.50	82	4	498.75				41	3	218.00	47112	2348	217773.75		99878	4675	447429.50
Trade & Industrial																												
Provisional																										22960	1032	105319.25
Permanent																										37858	1648	177569.00
Life				46	4	172.50	671	32	3660.50							149	6	598.75								14375	639	66567.50
Special	38	1	95.00	444	29	2346.50				901	42	4591.50				731	55	3842.00								3190	177	16556.50
Unreported																									68943	3464	325215.00	68943	3464	325215.00
Total	38	1	95.00	490	33	2519.00	671	32	3660.50	901	42	4591.50				880	61	4440.75							68943	3464	325215.00	147326	6960	691227.25
Vocational Agriculture																												
Provisional																										1430	91	6599.25
Permanent																										1468	92	6824.25
Life																										317	17	1665.00
Special				42	3	231.00				19	1	80.75														490	28	2273.75
Unreported																									10841	598	51951.50	10841	598	51951.50
Total				42	3	231.00				19	1	80.75													10841	598	51951.50	14546	826	69313.75
Grand Total	280	14	1522.00	1102	60	5161.75	1056	47	5273.50	2054	98	9890.75	82	4	498.75	242	10	1149.50	921	64	4658.75	224307	10313	1048628.50		455748	19952	2076051.25

TABLE 6

EDUCATIONAL BACKGROUND OF TEACHERS OF VOCATIONAL AGRICULTURAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Course	Grade Level	Advanced Degree Major-Minor[2] Under 5 yrs. experience			Regular Degree Major-Minor Under 5 yrs. experience			Regular Degree Major-Minor 5-10 yrs. experience			Non-Degree Major-Minor Under 5 yrs. experience			Non-Degree Major-Minor 10 or more yrs. experience			Total		
		S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Vocational Agriculture[7]	9	62	3	273.50	84	4	399.00				19	1	104.50				165	8	777.00
	10	31	2	127.25	57	4	270.75				11	1	60.50				99	7	458.50
	11				10	1	47.50										10	1	47.50
	12				18	1	85.50										18	1	85.50
	9 - 12				20	1	75.00										20	1	75.00
	11 & 12	49	2	204.75	54	3	289.75				12	1	66.00	19	1	80.75	134	7	641.25
Total		142	7	605.50	243	14	1167.50				42	3	231.00	19	1	80.75	426	24	2009.75
Farm Mechanics	N.R.[6]	31	2	127.25													31	2	127.25
	11							13	1	61.75							13	1	61.75
Total		31	2	127.25				13	1	61.75							44	3	189.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Students

[4]Classes

[5]Hours per week.

[6]Grade level not reported.

[7]This category also includes "General Agricultural" courses.

TABLE 7

EDUCATIONAL BACKGROUND OF TEACHERS OF VOCATIONAL AGRICULTURAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PROVISIONAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Course	Grade Level	Advanced Degree Major-Minor[2] S[3]	C[4]	H[5]	Regular Degree Major-Minor S	C	H	Total S	C	H
Vocational Agriculture[7]	9	24	1	102.00	224	15	1034.00	248	16	1136.00
	10	27	1	128.25	182	15	844.75	209	16	973.00
	11				90	6	435.25	90	6	435.25
	12				71	5	346.50	71	5	346.50
	9 - 10				89	5	410.50	89	5	410.50
	9 - 12				29	2	128.25	29	2	128.25
	10 - 11				11	1	60.50	11	1	60.50
	10 - 12				73	5	353.50	73	5	353.50
	11 - 12	19	1	90.25	284	17	1340.75	303	18	1431.00
Total		70	3	320.50	1053	71	4954.00	1123	74	5274.50
Conservation[8]	N.R.[6]				18	1	85.50	18	1	85.50
	8				22	1	82.50	22	1	82.50
	10				26	1	123.50	26	1	123.50
	10 - 12				28	1	133.00	28	1	133.00
	11 - 12				38	2	149.50	38	2	149.50
Total					132	6	574.00	132	6	574.00
Soil Science	9 - 10				26	1	84.50	26	1	84.50
Farm Mechanics	N.R.				21	1	99.75	21	1	99.75
	10				24	2	114.50	24	2	114.50
	11				14	1	66.50	14	1	66.50
	11 - 12				60	4	273.00	60	4	273.00
Total					119	8	553.75	119	8	553.75
Farm Management	N.R.	30	2	112.50				30	2	112.50
Total		30	2	112.50				30	2	112.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Students

[4]Classes

[5]Hours per week

[6]Grade level not reported.

[7]This category also includes "General Agricultural" courses.

[8]Usually non-vocational in nature.

TABLE 8

EDUCATIONAL BACKGROUND OF TEACHERS OF VOCATIONAL AGRICULTURAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Course	Grade Level	Advanced Degree: Major-Minor[2] 5-10 yrs. experience			Advanced Degree: Major-Minor[2] 10 or more yrs. experience			Regular Degree: Major-Minor 5-10 yrs. experience			Regular Degree: Major-Minor 10 or more yrs. experience			Regular Degree: Neither[3] 10 or more yrs. experience			Total		
		S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Vocational Agriculture[8]	N.R.[7]	15	1	56.25													15	1	56.25
	9	51	4	230.75	20	1	110.00	85	6	386.75	46	3	199.00	11	1	52.25	213	15	98.75
	10	73	6	317.25	39	2	206.25	118	7	538.25	59	4	259.25				289	19	1321.00
	11							27	2	101.25							27	2	101.25
	12	17	1	93.50	16	1	76.00	17	2	63.75							50	4	233.25
	9 & 10	31	1	170.50				28	2	127.00	24	2	107.00				83	5	404.50
	9 - 12				92	6	437.00										92	6	437.00
	10 & 11				107	5	475.25	14	1	66.50				23	1	126.50	144	7	668.25
	11 & 12	91	6	444.75	67	2	368.50	106	7	503.75	94	5	393.50				358	20	1710.50
Total		278	19	1313.00	341	17	1673.00	395	27	1787.25	223	14	958.75	34	2	178.75	1271	79	5910.75
Conservation[9]	11							6	1	19.50							6	1	19.50
	10 - 12										47	2	2223.25				47	2	2223.25
Total								6	1	19.50	47	2	2223.25				53	3	2242.75
Farm Mechanics	N.R.										21	2	78.75				21	2	78.75
	10	22	1	104.50	24	1	132.00	21	1	99.75	12	1	66.00				79	4	402.25
	11	10	1	42.50													10	1	42.50
	11 - 12							8	1	34.00	17	1	63.75				25	2	97.75
	10 - 12	9	1	49.50													9	1	49.50
Total		41	3	196.50	24	1	132.00	29	2	133.75	50	4	208.50				144	10	670.75

[1]Student hours were computed by multiplying the total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do nor hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

[8]This category also includes "General Agricultural" courses.

[9]Usually non-vocational in nature.

TABLE 9

EDUCATIONAL BACKGROUND OF TEACHERS OF VOCATIONAL AGRICULTURAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Courses	Grade Level	Advanced Degree Major-Minor[2] 10 or more yrs. experience			Regular Degree Major-Minor 5-10 yrs. experience			Regular Degree Major-Minor 10 or more yrs. experience			Total		
		S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H
Vocational Agriculture[7]	9				10	1	47.50	41	2	209.00	51	3	256.50
	10				11	1	52.25	74	4	362.00	85	5	414.50
	9 - 12	10	1	42.50							10	1	42.50
	10 - 12							22	1	220.00	22	1	220.00
	11 & 12							102	4	498.00	102	4	498.00
Total		10	1	42.50	21	2	99.75	239	11	1289.00	270	14	1431.50
Farm Mechanics	N.R.[6]							14	1	66.50	14	1	66.50
	10							14	1	77.00	14	1	77.00
Total								28	2	143.50	28	2	143.50
Farm Management	11 & 12				19	1	90.25				19	1	90.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Students

[4]Classes

[5]Hours per week.

[6]Grade level not reported.

[7]This category also includes "General Agricultural" courses.

TABLE 10

TEACHERS OF VOCATIONAL AGRICULTURE COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12
WITH YEARS OF EXPERIENCE AND EDUCATIONAL BACKGROUND UNREPORTED
ACCORDING TO NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES,
AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

GRADE LEVEL

Courses	Unknown[2] S[3]	C[4]	H[5]	8 S	C	H	9 S	C	H	10 S	C	H	11 S	C	H	12 S	C	H	8-9 S	C	H	9-10 S	C	H	9-11 S	C	H
Farm Crops							21	1	99.75	22	1	93.50															
Vocational Agriculture[6]	578	32	2933.00	84	4	357.00	1868	105	9075.50	1721	118	8306.25	715	47	3420.00	672	49	3245.00	28	1	133.00	435	23	2120.50	30	2	142.50
Soil Science							27	1	128.25																		
Conservation[7]	74	3	302.50				35	1	192.50	9	1	38.25				20	1	95.00				17	1	55.25			
Animal Husbandry							19	1	247.00	16	1	76.00	14	1	59.50							18	1	85.50			
Farm Mechanics	232	15	1140.50	39	2	78.00				318	22	1442.00	86	7	389.00	41	3	178.75				26	1	143.00			
Farm Management																24	2	102.00									
Unknown																2	1	9.50									
Total	884	50	4376.00	123	6	435.00	1970	109	9743.00	2086	143	9956.00	815	55	3868.50	759	56	3630.25	28	1	133.00	496	26	2404.25	30	2	142.50

Courses	9-12 S	C	H	10-11 S	C	H	10-12 S	C	H	11-12 S	C	H	Total S	C	H
Farm Crops													43	2	193.25
Vocational Agriculture	68	5	315.00	175	9	866.50	182	9	758.50	2612	94	12607.75	9168	498	44280.50
Soil Science													27	1	128.25
Conservation	65	3	285.75	16	1	60.00	150	6	598.00	82	3	347.00	468	20	1974.25
Animal Husbandry													67	4	468.00
Farm Mechanics	15	1	82.50				73	5	340.50	177	11	835.25	1007	67	4629.50
Farm Management										35	3	166.25	59	5	268.25
Unknown													2	1	9.50
Total	148	9	683.25	191	10	926.50	405	20	1697.00	2906	111	13956.25	10841	598	51951.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Grade level not reported.

[3]Students.

[4]Classes.

[5]Hours.

[6]This category also includes "General Agricultural" courses.

[7]Usually non-vocational in nature.

TABLE 11

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Advanced Degree

Courses	Grade Level	Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	Neither[3] 5-10 yrs. experience S	C	H	Neither[3] 10 or more yrs experience S	C	H	Total S	C	H
Accounting and Bookkeeping	11 & 12	28	1	119.00							28	1	119.00
Business Economics	11 & 12							31	1	116.25	31	1	116.25
Business Mathematics	9				49	2	269.50				49	2	269.50
Business Organization	11							33	1	123.75	33	1	123.75
Distributive Education	12	26	1	97.50							26	1	97.50
Economic Geography	11	34	1	127.50							34	1	127.50
Office Machines	12	22	1	82.50				50	2	187.50	72	3	270.00
Shorthand	11	21	1	78.75							21	1	78.75
Typewriting	10				62	2	341.00				62	2	341.00
	11	20	1	95.00							20	1	95.00
	12	27	2	128.25							27	2	128.25
Total		47	3	223.25	62	2	341.00				109	5	564.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

TABLE 11 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Courses	Grade Level	Unknown S[4] C[5] H[6]	Regular Degree Major-Minor[2] Less than 5yrs. experience S C H	5-10 yrs. experience S C H	10 or more years experience S C H	Neither[3] Less than 5yrs experience S C H	5-10 yrs. experience S C H	10 or more years experience S C H	Total S C H
Accounting and Bookkeeping	N.R.[7]		181 7 847.75						181 7 847.75
	10					24 1 132.00			24 1 132.00
	11		51 2 203.75						51 2 203.75
	11 & 12		71 4 311.25					3 1 9.75	74 5 321.00
Total			303 13 1362.75			24 1 132.00		3 1 9.75	330 15 1504.50
Business Economics	N.R.		25 1 118.75						25 1 118.75
Business English	12		15 1 71.25						15 1 71.25
Business Law	N.R.		28 1 133.00						28 1 133.00
Business Mathematics	N.R.		68 2 323.00						68 2 323.00
	9					93 4 498.00			93 4 498.00
	12		56 2 266.00						56 2 266.00
	11 - 12		22 1 104.50						22 1 104.50
Totals			146 5 693.50			93 4 498.00			239 9 1191.50
Cooperative Training for Office Occupations	N.R.		25 1 162.50						25 1 162.50
Distributive Education	12		36 1 171.00						36 1 171.00
Economic Geography	9							3 1 9.75	3 1 9.75
Filing	10		32 1 152.00						32 1 152.00
General Business	N.R.		20 1 75.00						20 1 75.00
	9		86 3 388.50	26 1 123.50					112 4 512.00
	10				30 1 127.50				30 1 127.50
	9 - 10	49 2 232.75							49 2 232.75
	10 - 11		29 2 123.25						29 2 123.5
Total		49 2 232.75	135 6 586.75	26 1 123.50	30 1 127.50				240 10 1070.50
Office Machines	12		36 2 171.00						36 2 171.00
Office Practices	N.K.		33 2 156.75						33 2 156.75
	11					70 4 373.75			70 4 373.75
	12		32 3 137.00	88 4 340.00		63 3 328.50			183 10 805.50
Total			65 5 293.75	88 4 340.00		133 7 702.25			286 16 1336.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 11 - Continued

Curriculum	Grade Level	Unknown S	C	H	Regular Degree Major-Minor: Less than 5yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more years experience S	C	H	Neither: Less than 5yrs experience S	C	H	5-10 yrs. experience S	C	H	10 or more years experience S	C	H	Total S	C	H
Retailing	N.R.				28	1	133.00																28	1	133.00
	9				25	2	106.25																25	2	106.25
Total					53	3	239.25																53	3	239.25
Shorthand	N.R.				22	1	104.50																22	1	104.50
	11				49	2	269.50	33	1	156.75				17	1	93.50						99	4	519.75
	12				35	2	168.00	15	1	71.25												50	3	239.25
	10 - 11				8	1	44.00																8	1	44.00
	10 - 12							24	1	90.00													24	1	90.00
	11 & 12										16	1	88.00										16	1	88.00
Total					114	6	586.00	72	3	318.00	16	1	88.00	17	1	93.50							219	11	1085.50
Typewriting	N.R.				366	12	1819.75																366	12	1819.75
	9																27	1	148.50				27	1	148.50
	10													207	8	1043.25	30	1	165.00				237	9	1208.25
	11				112	6	520.25	150	5	712.50				74	2	407.00	50	2	275.00				386	15	1914.75
	12				38	2	160.50	61	2	289.75													99	4	450.25
	10 - 12				65	3	303.75																65	3	303.75
	11 & 12				72	4	318.25	25	1	106.25	43	2	209.00										140	7	633.50
Total					653	27	3122.50	236	8	1108.50	43	2	209.00	281	10	1450.25	107	4	588.50				1320	51	6478.75

TABLE 11 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Non-Degree

		Major-Minor[2]															
		Less than 5 yrs. experience			5-10 yrs. experience			10 or more years experience			Neither[3] 5-10yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping	12	27	2	165.00				15	1	63.75	23	1	109.25	65	4	338.00
	11 & 12	32	1	104.00										32	1	104.00
Total		59	3	269.00				15	1	63.75	23	1	109.25	97	5	442.00
Business Law	10 - 12	35	1	131.25										35	1	131.25
General Business	N.R.[7]	25	1	118.75										25	1	118.75
	9	122	3	457.50										122	3	457.50
	10															
	12										18	1	85.50	18	1	85.50
	11 & 12										60	2	285.00	60	2	285.00
Total		147	4	576.25							78	3	370.50	225	7	946.75
Office Machines	11 - 12	16	1	52.00										16	1	52.00
Office Practices	11							12	1	51.00				12	1	51.00
	11 & 12	32	1	104.00										32	1	104.00
Total		32	1	104.00				12	1	51.00				44	2	155.00
Shorthand	11				12	1	51.00	11	1	46.75				23	2	97.75
	12				10	1	42.50	9	1	38.25	7	1	33.25	26	3	114.00
	11 - 12	8	1	38.00										8	1	38.00
Total		8	1	38.00	22	2	93.50	20	2	85.00	7	1	33.25	57	6	249.75
Typewriting	10				63	3	267.75	17	1	72.25				80	4	340.00
	11				30	1	127.50							30	1	127.50
	12										18	1	85.50	18	1	85.50
	9 & 10	45	2	170.25										45	2	170.25
	11 & 12										60	2	285.00	60	2	285.00
Total		45	2	170.25	93	4	395.25	17	1	72.25	78	3	370.50	233	10	1008.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 12

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PROVISIONAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

		Advanced Degree															
		Major-Minor[2]			Neither[3]			Regular Degree									
								Major-Minor			Neither			Total			
Course	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	
Accounting and Bookkeeping	N.R.[7]							75	3	281.25	10	1	37.50	85	4	318.75	
	9							25	1	106.25				25	1	106.25	
	10	282	9	1057.50				320	10	1375.50	48	2	264.00	650	21	2697.00	
	11	53	2	198.75				168	8	804.75				221	10	1003.50	
	12							49	2	222.75				49	2	222.75	
	10 & 11	79	3	346.25				123	4	556.75				202	7	903.00	
	10 - 12	80	3	440.00				484	17	2564.00				564	20	3004.00	
	11 & 12	159	7	755.25				394	21	1742.50				553	28	2497.75	
Total		653	24	2797.75				1638	66	7653.75	58	3	301.50	2349	93	10753.00	
Business English	N.R.							27	1	101.25				27	1	101.25	
	11							15	1	82.50				15	1	82.50	
	12							14	1	66.50				14	1	66.50	
	11 & 12							18	1	76.50				18	1	76.50	
Total								74	4	326.75				74	4	326.75	
Business Law	12	55	2	261.25				72	4	338.25				127	6	599.50	
Business Mathematics	N.R							189	6	826.25				189	6	826.25	
	7							109	4	463.25				109	4	463.25	
	8							81	3	344.25				81	3	344.25	
	9							35	2	156.25				35	2	156.25	
	10				39	1	146.25	1302	42	4914.50	36	1	135.00	1377	44	5195.75	
	11	421	13	1578.75										421	13	1578.75	
	12							38	2	196.75				38	2	196.75	
	9 - 10							22	1	82.50				22	1	82.50	
	10 - 11							56	2	210.00				56	2	210.00	
	10 - 12							27	1	148.50				27	1	148.50	
Total		421	13	1578.75	39	1	146.25	1859	63	7342.25	36	1	135.00	2355	78	9202.25	
Business Organizations	N.R.							31	1	170.50				31	1	170.50	
	10	159	5	874.50				104	4	494.00				263	9	1368.50	
	10 - 12							63	2	346.50				63	2	346.50	
Total		159	5	874.50				198	7	1011.00				357	12	1885.50	
Cooperative Training for Distributive Occupations	N.R.							100	4	556.25				100	4	556.25	
	12							72	3	294.50				72	3	294.50	
Total								172	7	850.75				172	7	850.75	

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 12 - Continued

Course	Grade Level	Advanced Degree: Major-Minor S	C	H	Advanced Degree: Neither S	C	H	Regular Degree: Major-Minor S	C	H	Regular Degree: Neither S	C	H	Total S	C	H
Cooperative Training for Office Occupations	N.R.							25	1	118.75				25	1	118.75
	11 & 12							46	2	197.50				46	2	197.50
Total								71	3	316.25				71	3	316.25
Distributive Education	10							38	1	142.50				38	1	142.50
	11							21	1	99.75				21	1	99.75
	12							47	2	195.50				47	2	195.50
Total								106	4	437.75				106	4	437.75
Filing	10	66	2	247.50				175	6	656.25				241	8	903.75
	12							111	4	497.25				111	4	497.25
	10 - 12							30	1	127.50				30	1	127.50
	11 & 12	32	1	120.00				140	5	525.00				172	6	645.00
Total		98	3	367.50				456	16	1806.00				554	19	2173.50
General Business	N.R.							174	6	861.00				174	6	861.00
	8	182	6	773.50				229	8	948.25				411	14	1721.75
	9	464	14	2014.75				2523	84	10727.50	47	2	207.25	3034	100	12949.50
	10							214	9	935.50				214	9	935.50
	11							34	1	161.50				34	1	161.50
	9 - 10	41	2	153.75				80	3	300.00				121	5	453.75
	9 - 12							180	7	813.00				180	7	813.00
	10 - 11	36	1	171.00										36	1	171.00
	10 - 12							82	3	391.50				82	3	391.50
	11 - 12							20	1	95.00				20	1	95.00
Total		723	23	3113.00				3536	122	15233.25	47	2	207.25	4306	147	18553.50
Merchandising Information	12							26	1	123.50				26	1	123.50
Office Machines	11	24	1	90.00				133	4	498.75				157	5	588.75
	12	22	1	82.50				231	9	929.25				253	10	1011.75
	11 - 12	138	6	517.50				174	6	652.50				312	12	1170.00
Total		184	8	690.00				538	19	2080.50				722	27	2770.50
Office Practices	N.R.							43	2	204.25				43	2	204.25
	7							7	1	26.25				7	1	26.25
	11				26	1	143.00	122	5	545.50				148	6	688.50
	12	51	2	229.75	25	1	137.50	207	12	934.25				283	15	1301.50
	11 & 12							71	10	335.00				71	10	335.00
Total		51	2	229.75	51	2	280.50	450	30	2045.25				552	34	2555.50
Retailing	11							174	7	830.25				174	7	830.25
	12							189	6	867.75	42	2	210.00	231	8	1077.75
	10 - 12	26	1	123.50										26	1	123.50
	11 - 12	149	5	607.75				497	17	1863.75				646	22	2471.50
Total		175	6	731.25				860	30	3561.75	42	2	210.00	1077	38	4503.00
Secretarial Practices	11							7	1	26.25				7	1	26.25
	11 & 12							15	1	71.25				15	1	71.25
Total								22	2	97.50				22	2	97.50

TABLE 12 - Continued

Course	Grade Level	Advanced Degree: Major-Minor S	C	H	Advanced Degree: Neither S	C	H	Regular Degree: Major-Minor S	C	H	Regular Degree: Neither S	C	H	Total S	C	H
Shorthand	N.R.							21	2	115.50	13	1	61.75	34	3	177.25
	11	233	9	914.00				581	25	2456.50				814	34	3370.50
	12	17	1	72.25	33	2	181.50	204	15	916.25	12	1	66.00	266	19	1236.00
	10 - 11							13	1	61.75				13	1	61.75
	10 - 12										24	1	114.00	24	1	114.00
	11 - 12	44	2	225.50				420	24	1923.75	27	1	128.25	491	27	2277.50
Total		294	12	1211.75	33	2	181.50	1239	67	5473.75	76	4	370.00	1642	85	7237.00
Notehand (Personal Use)	11 & 12							30	1	112.50				30	1	112.50
Transcription	N.R.							60	3	285.00				60	3	285.00
	11							9	1	33.75				9	1	33.75
	12	17	1	72.25				114	6	474.50	12	1	66.00	143	8	612.75
Total		17	1	72.25				183	10	793.25	12	1	66.00	212	12	931.50
Typewriting	N.R.							314	12	1595.75	24	2	90.00	338	14	1685.75
	8	236	7	1003.00	30	1	127.50	404	12	1752.00				670	20	2882.50
	9	401	12	1704.25	119	4	505.75	2767	89	11792.00	139	5	659.50	3426	110	14661.50
	10	704	21	2640.00				2293	74	9276.25	83	3	256.50	3080	98	12172.75
	11	303	9	1136.25				964	39	4090.75	56	2	308.00	1323	50	5535.00
	12	17	1	80.75				154	12	671.25	28	1	154.00	199	14	906.00
	8 & 9							27	1	114.75				27	1	114.75
	9 & 10							13	1	48.75				13	1	48.75
	9 - 11							158	5	869.00				158	5	869.00
	9 - 12							382	12	1783.00				382	12	1783.00
	10 & 11							333	17	1427.75				333	17	1427.75
	10 - 12	133	4	631.25				1515	54	7289.50	65	2	308.75	1713	60	8229.50
	11 & 12	20	1	75.00				437	24	1975.00				457	25	2050.00
Total		1814	55	7270.50	149	5	633.25	9761	352	42685.75	395	15	1776.75	12119	427	52366.25
Introduction to Distribution	9							57	2	254.75				57	2	254.75

TABLE 13

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

		Advanced Degree												Regular Degree												
		Major-Minor[2]						Neither[3]						Major-Minor						Neither						
		5-10 yrs. experience			10 or more yrs. experience			5-10 yrs. experience			10 or more yrs. experience			5-10 yrs. experience			10 or more yrs. experience			5-10 yrs. experience			10 or more yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping	N.R.[7]	20	2	75.00	29	1	159.50							88	4	418.00	121	4	581.75							258	11	1234.25
	9																5	1	21.25							5	1	21.25
	10	821	27	3243.75	1849	59	7018.75	23	1	126.50	87	3	422.50	210	9	862.75	349	12	1385.75							3339	111	13060.00
	11	323	11	1444.25	453	18	1895.25	10	1	55.00	30	1	112.50	280	10	1190.50	37	2	164.75							1133	43	4862.25
	12	78	3	424.75	69	3	305.75							35	1	166.25	41	2	162.25							223	9	1059.00
	10 - 11	143	5	619.25	111	4	485.25							32	1	152.00										286	10	1256.50
	10 - 12	68	3	359.00	122	4	630.50							17	1	80.75	100	3	526.00				30	1	165.00	337	12	1761.25
	11 & 12	335	14	1551.75	223	9	1074.50							103	4	462.25	41	3	191.50							702	30	3280.00
Total		1788	65	7717.75	2856	98	11569.50	33	2	181.50	117	4	535.00	765	30	3332.50	694	27	3033.25				30	1	165.00	6283	227	26534.50
Business Economics	12										64	2	240.00													64	2	240.00
	10 & 11	33	1	156.75																						33	1	156.75
	11 & 12	51	2	255.75																						51	2	255.75
Total		84	3	412.50							64	2	240.00													148	5	652.50
Business English	N.R.	109	3	408.75	140	4	525.00																			249	7	933.75
	12	50	2	237.50	19	1	90.25	26	1	143.00																95	4	470.75
	11 & 12				17	1	80.75										12	1	57.00							29	2	137.75
Total		159	5	646.25	176	6	696.00	26	1	143.00							12	1	57.00							373	13	1542.25
Business Law	N.R.	25	1	118.75										66	2	363.00										91	3	481.75
	10													88	1	330.00										88	1	330.00
	11										27	1	101.25													27	1	101.25
	12	176	6	697.00	651	21	2639.25	31	1	170.50	23	1	126.50	128	4	577.00	43	2	196.25							1052	35	4406.50
	10 - 12				53	2	291.50																			53	2	291.50
	11 & 12	58	2	231.50	17	1	80.75							54	2	237.00										129	5	549.25
Total		259	9	1047.25	721	24	3011.50	31	1	170.50	50	2	227.75	336	9	1507.00	43	2	196.25							1440	47	6160.25
Business Mathematics	N.R.	25	1	118.75	25	1	106.25							25	1	118.75										75	3	343.75
	9				69	2	274.25	26	1	143.00							37	2	156.75							132	5	574.00
	10	542	18	2064.50	1808	58	6809.00	35	1	131.25				357	12	1362.75	102	3	382.50	36	1	135.00				2880	93	10885.00
	11	34	1	161.50	58	2	241.50										39	1	185.25							131	4	588.25
	12													51	2	242.25										51	2	242.25
	10 - 11				30	1	142.50																			30	1	142.50
	10 - 12				114	3	627.00										31	1	170.50							145	4	797.50
	11 - 12				29	1	137.75																			29	1	137.75
Total		601	20	2344.75	2133	68	8338.25	61	2	274.25				433	15	1723.75	209	7	895.00	36	1	135.00				3473	113	13711.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 13 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor: 5-10 yrs. experience S	C	H	Advanced Degree: Major-Minor: 10 or more yrs. experience S	C	H	Advanced Degree: Neither: 5-10 yrs. experience S	C	H	Advanced Degree: Neither: 10 or more yrs. experience S	C	H	Regular Degree: Major-Minor: 5-10 yrs. experience S	C	H	Regular Degree: Major-Minor: 10 or more yrs. experience S	C	H	Regular Degree: Neither: 5-10 yrs. experience S	C	H	Regular Degree: Neither: 10 or more yrs. experience S	C	H	Total S	C	H
Business Organization	N.R.				21	1	78.75																			21	1	78.75
	9	63	3	236.25																						63	3	236.25
	11													56	2	210.00										56	2	210.00
	12	23	1	109.25																						23	1	109.25
	10 - 12				74	3	407.00																			74	3	407.00
Total		86	4	345.50	95	4	485.75							56	2	210.00										237	10	1041.25
Cooperative	N.R.	96	4	410.00	48	2	180.00																			144	6	590.00
Training for	11	17	1	80.75																						17	1	80.75
Distributive	12	50	2	187.50	304	10	1708.75										20	1	160.00							374	13	2056.25
Occupations	10 - 12				9	1	72.00																			9	1	72.00
	11 & 12	48	3	228.00	32	1	120.00																			80	4	348.00
Total		211	10	906.25	393	14	2080.75										20	1	160.00							624	25	3147.00
Cooperative	N.R.	75	3	356.25	100	4	475.00							25	1	137.50										200	8	968.75
Training for	11																31	1	116.25							31	1	116.25
Office	12				65	2	435.50																			65	2	435.50
Occupations	11 & 12	116	4	435.00	25	1	93.75																			141	5	528.75
Total		191	7	794.25	190	7	1004.25							25	1	137.50	31	1	116.25							437	16	2052.25
Distributive	10	29	1	137.75																						29	1	137.75
Education	11	87	4	413.25																						87	4	413.25
	12	31	1	147.25	53	2	229.75										55	2	261.25							139	5	638.25
	10 - 12																34	1	161.50							34	1	161.50
	11 & 12				31	1	170.50							45	2	168.75										76	3	339.25
Total		147	6	698.25	84	3	400.25							45	2	168.75	89	3	422.75							365	14	1690.00
Economic	N.R.	54	3	202.50													24	1	90.00							78	4	292.50
Geography	10	60	2	225.00																						60	2	225.00
	10 - 12				23	1	126.50																			23	1	126.50
Total		114	5	427.50	23	1	126.50										24	1	90.00							161	7	644.00
Filing	N.R.				14	1	52.50																			14	1	52.50
	10	175	6	656.25	130	4	513.50																			305	10	1169.75
	12	26	1	123.50																						26	1	123.50
	8 - 10				38	1	142.50																			38	1	142.50
	10 & 11				27	1	128.25																			27	1	128.25
	10 - 12				62	2	263.50																			62	2	263.50
	11 & 12	71	3	266.25	449	14	1683.75							33	2	144.75	37	1	138.75							590	20	2233.50
Total		272	10	1046.00	720	23	2784.00							33	2	144.75	37	1	138.75							1062	36	4113.50
General Business	N.R.													17	1	72.25										17	1	72.25
	8	343	11	1457.75	190	6	807.50	34	1	144.50				93	3	395.25										660	21	2805.00
	9	501	17	2208.75	490	18	1884.00	85	4	467.50	73	3	336.50	496	15	2065.00	293	9	1267.75				172	5	731.00	2110	71	8960.50
	10	31	1	147.25	25	1	93.75							107	4	460.25	38	2	174.50							201	8	875.75
	12				23	1	126.50																			23	1	126.50
	9 - 10																						36	1	135.00	36	1	135.00
	10 - 11																26	1	123.50							26	1	123.50
	10 - 12				27	1	148.50																			27	1	148.50
	11 - 12																11	1	41.25							11	1	41.25
Total		875	29	3813.75	755	27	3060.25	119	5	612.00	73	3	336.50	713	23	2992.75	368	13	1607.00				208	6	866.00	3111	106	13288.25
Merchandising Information	11 - 12													54	2	229.50										54	2	229.50

TABLE 13 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor: 5-10 yrs. experience S	C	H	Advanced Degree: Major-Minor: 10 or more yrs. experience S	C	H	Advanced Degree: Neither: 5-10 yrs. experience S	C	H	Advanced Degree: Neither: 10 or more yrs. experience S	C	H	Regular Degree: Major-Minor: 5-10 yrs. experience S	C	H	Regular Degree: Major-Minor: 10 or more yrs. experience S	C	H	Regular Degree: Neither: 5-10 yrs. experience S	C	H	Regular Degree: Neither: 10 or more yrs. experience S	C	H	Total S	C	H
Office Machines	N.R.	18	1	85.50																				18	1	85.50
	11				26	1	97.50																	26	1	97.50
	12	267	10	1148.25	212	10	1076.75							16	2	72.00								495	22	2297.00
	10 - 11				30	1	112.50																	30	1	112.50
	10 - 12				21	1	99.75																	21	1	99.75
	11 - 12	475	18	1904.50	1155	39	4428.50							115	5	522.25								1745	26	6855.25
Total		760	29	3138.25	1444	52	5815.00							131	7	594.25								2335	88	9547.50
Office Practices	N.R.													22	1	121.00								22	1	121.00
	11				25	1	118.75				17	1	93.50				47	2	223.25					89	4	435.50
	12	161	7	673.25	208	8	965.50				109	4	532.00	119	6	553.75	146	9	679.50					743	34	3304.00
	11 & 12	35	2	157.50	126	5	598.50										20	1	110.00					181	8	866.00
Total		196	9	830.75	359	14	1682.75				126	5	625.50	141	7	674.75	213	12	1012.75					1035	47	4826.50
Retailing	N.R.	46	3	172.50																				46	3	172.50
	11				88	4	371.00																	88	4	371.00
	12	20	1	75.00	70	3	370.75							41	2	182.75								165	8	815.50
	10 - 11	28	1	105.00																				28	1	105.00
	11 - 12	512	18	1920.00	302	10	1209.75										43	2	161.25					857	30	3291.00
Total		606	23	2272.50	460	17	1951.50							41	2	182.75	43	2	161.25					1184	46	4755.00
Secretarial Practices	N.R.				16	1	76.00																	16	1	76.00
	12	37	2	162.75	10	1	37.50										10	1	47.50					57	4	247.75
Total		37	2	162.75	26	2	113.50										10	1	47.50					73	5	323.75
Shorthand	N.R.													20	1	95.00	17	1	93.50					37	2	188.50
	10													14	1	52.50								14	1	52.50
	11	722	27	2745.50	1085	41	4361.25				147	8	771.75	128	7	502.00	293	12	1250.00				21 1 115.50	2396	96	9746.00
	12	147	7	592.50	482	20	1837.50				20	1	110.00	33	3	120.75	188	10	857.75					870	41	3518.50
	10 - 11	49	2	269.50	19	1	71.25																	68	3	340.75
	11 - 12	74	4	366.75	124	7	620.25							113	8	511.50	115	6	517.50					426	25	2016.00
Total		992	40	3974.25	1710	69	6890.25				167	9	881.75	308	20	1281.75	613	29	2718.75				21 1 115.50	3811	168	15862.25
Notehand (Personal Use)	11 & 12	41	2	153.75	162	5	754.50										24	1	90.00					227	8	998.25
Transcription	N.R.																23	1	86.25					23	1	86.25
	7				32	1	120.00																	32	1	120.00
	11																34	2	157.25					34	2	157.25
	12	77	3	288.75	421	17	1643.50							27	2	101.25	121	5	567.00					646	27	2600.50
Total		77	3	288.75	453	18	1763.50							27	2	101.25	178	8	810.50					735	31	2964.00
Typewriting	N.R.	40	2	190.00	12	1	45.00							251	11	1227.50	73	3	359.50					376	17	1822.00
	7				80	3	160.00																	80	3	160.00
	8	244	7	1037.00	108	4	279.00							90	3	382.50	40	1	170.00					482	15	1868.50
	9	1195	39	5024.75	489	17	1997.00				59	2	324.50	643	19	2750.25	817	24	3472.25					3203	101	13568.75
	10	1180	38	4563.50	3099	96	11890.75	271	9	1382.50	109	4	529.50	255	9	1161.75	517	17	2118.50					5431	173	21646.50
	11	383	15	1570.00	1144	39	4481.75				53	2	291.50	261	10	1177.25	271	11	1117.75					2112	77	8638.25
	12	146	6	664.75	205	8	876.50	35	1	192.50	83	3	418.25	95	6	454.25	88	5	403.50					652	29	3009.75
	8 & 9	36	1	153.00										48	1	204.00								84	2	357.00
	9 & 10													137	5	542.75								137	5	542.75
	9 - 11	89	3	490.00																				89	3	490.00
	9 - 12				208	7	988.00							161	5	813.50	204	7	969.00					573	19	2770.50
	10 & 11	240	7	1124.00	73	3	314.00							131	6	532.25	145	6	670.25					589	22	2640.50
	10 - 12	317	10	1538.75	238	8	1200.25							110	4	559.25	298	10	1592.75	108	3	594.00		1071	35	5485.00
	11 & 12	206	9	902.75	559	19	2280.25							136	7	556.00	185	9	921.50					1086	44	4660.50
Total		4076	137	17258.50	6215	205	24512.50	306	10	1575.00	304	11	1563.75	2318	86	10361.25	2638	93	11795.00	108	3	594.00		15965	545	67660.00

TABLE 14

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

		Advanced Degree Major-Minor[2]									Neither[3]								
		Less than 5 yrs. experience			5-10 yrs. experience			10 or more yrs. experience			5-10 yrs. experience			10 or more yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping	10	77	3	288.75				550	18	2062.50							627	21	2351.25
	11							352	17	1479.00							352	17	1479.00
	12							34	2	149.50							34	2	149.50
	10 & 11							26	1	123.50							26	1	123.50
	10 - 12							130	5	534.50							130	5	534.50
	11 & 12				17	1	63.75	207	10	978.50							224	11	1042.25
Total		77	3	288.75	17	1	63.75	1299	53	5327.50							1393	57	5680.00
Business Economics	11 & 12							59	2	221.25							59	2	221.25
Business English	N.R.[7]							137	4	513.75							137	4	513.75
	12							21	1	78.75							21	1	78.75
Total								158	5	592.50							158	5	592.50
Business Law	N.R.							20	1	110.00							20	1	110.00
	12							229	7	858.75				33	1	181.50	262	8	1040.25
	11 & 12							57	2	213.75							57	2	213.75
Total								306	10	1182.50				33	1	181.50	339	11	1364.00
Business Mathematics	8													65	3	276.25	65	3	276.25
	10				69	2	258.75	784	24	2940.00				49	2	183.75	902	28	3382.50
	11							44	1	209.00							44	1	209.00
	11 & 12													23	1	109.25	23	1	109.25
	10 - 12							84	3	382.50							84	3	382.50
Total					69	2	258.75	912	28	3531.50				137	6	569.25	1118	36	4359.50
Business Organization	N.R.													25	1	137.50	25	1	137.50
	10 - 12							51	2	280.50				28	1	154.00	79	3	434.50
Total								51	2	280.50				53	2	291.50	104	4	572.00
Cooperative Training for Distributive Occupations								55	2	278.50				36	1	288.00	91	3	566.50
Cooperative Training for Office Occupations	N.R.							100	4	518.75							100	4	518.75
	12							128	2	1024.00							128	2	1024.00
Total								228	6	1542.75							228	6	1542.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 14 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor — Less than 5 yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Neither: 5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Total S	C	H
Distributive Education	11							45	2	213.75							45	2	213.75
Economic Geography	10 - 12													61	3	335.50	61	3	335.50
Filing	10				21	1	78.75										21	1	78.75
	12	25	1	93.75				35	2	166.25							60	3	260.00
Total		25	1	93.75	21	1	78.75	35	2	166.25							81	4	338.75
General Business	N.R.							26	1	143.00							26	1	143.00
	8							31	1	131.75				29	1	123.25	60	2	255.00
	9				36	1	135.00	296	9	1108.00							332	10	1243.00
	10							41	2	194.75							41	2	194.75
Total					36	1	135.00	394	13	1577.50				29	1	123.25	459	15	1835.75
Merchandising Information	11 & 12							120	3	660.00							120	3	660.00
Office Machines	N.R.							15	1	82.50							15	1	82.50
	11							35	1	131.25							35	1	131.25
	12							313	14	1423.00							313	14	1423.00
	11 & 12							25	1	93.75							25	1	93.75
Total								388	17	1730.50							388	17	1730.50
Office Practices	12							79	4	317.25				67	3	318.25	146	7	635.50
	11 & 12							55	2	230.25				19	1	90.25	74	3	320.50
Total								134	6	547.50				86	4	408.50	220	10	956.00
Retailing	N.R.							26	1	97.50							26	1	97.50
	12							37	2	138.75							37	2	138.75
	10 - 12													57	2	270.75	57	2	270.75
	11 - 12							73	3	298.75							73	3	298.75
Total								136	6	535.00				57	2	270.75	193	8	805.75
Secretarial Practices	12							59	3	258.25							59	3	258.25
Shorthand	10							89	3	333.75							89	3	333.75
	11				19	1	71.25	642	24	2649.00				166	8	803.50	827	33	3523.75
	12							354	18	1562.50				130	5	609.75	484	23	2172.25
	10 & 11							17	1	72.25							17	1	72.25
	10 - 12							28	1	133.00							28	1	133.00
	11 & 12				5	1	18.75	144	7	690.00				63	3	299.25	212	11	1008.00
Total					24	2	90.00	1274	54	5440.50				359	16	1712.50	1657	72	7243.00
Notehand (Personal Use)	11 & 12							36	1	135.00							36	1	135.00
Transcription	12							181	8	755.75	14	1	77.00	49	2	207.75	244	11	1040.50
Typewriting	8													26	1	110.50	26	1	110.50
	9	134	4	569.50				621	19	2529.50				76	3	323.00	831	26	3422.00
	10	201	6	753.75	53	2	198.75	1557	49	5890.00				153	5	698.00	1964	62	7540.50
	11							708	20	2655.00				50	3	253.25	758	23	2908.25
	12							190	6	835.50				27	1	148.50	217	7	984.00
	8 & 9													52	2	221.00	52	2	221.00
	9 & 12													128	4	608.00	128	4	608.00
	10 & 11							25	2	118.75							25	2	118.75
	10 & 12							806	27	3811.75							806	27	3811.75
	11 & 12				15	1	56.25	199	8	895.25							214	9	951.50
Total		335	10	1323.25	68	3	255.00	4106	131	16735.75				512	19	2362.25	5021	163	20676.25

TABLE 14 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

		Regular Degree Major-Minor[2]									Neither[3]								
		Less than 5 yrs. experience			5-10 yrs. experience			10 or more yrs. experience			5-10 yrs. experience			10 or more yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping	N.R.[7]							107	4	469.75							107	4	469.75
	10							162	5	607.50				65	3	327.50	227	8	935.00
	11							300	10	1425.00				19	1	90.25	319	11	1515.25
	12							110	6	514.50							110	6	514.50
	10 & 11							92	3	437.00							92	3	437.00
	10 - 12				26	1	143.00	29	1	108.75							55	2	251.75
	11 & 12				70	3	318.50	185	10	805.25							255	13	1123.75
Total					96	4	461.50	985	39	4367.75				84	4	417.75	1165	47	5247.00
Business English	N.R.				36	1	135.00										36	1	135.00
	10							20	1	95.00							20	1	95.00
	12							212	9	1007.00							212	9	1007.00
Total					36	1	135.00	232	10	1102.00							268	11	1237.00
Business Law	11							23	1	86.25							23	1	86.25
	12							31	1	147.25							31	1	147.25
	10 - 12							14	1	77.00							14	1	77.00
Total								68	3	310.50							68	3	310.50
Business Mathematics	7													61	2	259.25	61	2	259.25
	8													95	4	438.25	95	4	438.25
	9													84	3	443.25	84	3	443.25
	10	79	3	375.25				54	2	202.50				50	2	187.50	183	7	765.25
	11							59	2	280.25							59	2	280.25
	10 - 12							24	1	132.00							24	1	132.00
Total		79	3	375.25				137	5	614.75				290	11	1328.25	506	19	2318.25
Business Organization	9													31	1	131.75	31	1	131.75
	10 - 12							84	3	462.00							84	3	462.00
Total								84	3	462.00				31	1	131.75	115	4	593.75
Economic Geography	11							72	2	342.00							72	2	342.00
Filing	10							26	1	97.50							26	1	97.50
General Business	8							67	2	284.75	176	5	748.00				243	7	1032.75
	9	135	5	742.50	27	1	101.25	238	10	1010.50				244	10	1032.00	644	26	2886.25
	10				37	1	175.75	52	4	252.50				28	1	105.00	117	6	533.25
	9 - 10							14	1	52.50							14	1	52.50
	10 - 11							70	3	285.50							70	3	285.50
	10 - 12							111	5	536.25							111	5	536.25
	11 - 12							35	1	192.50							35	1	192.50
Total		135	5	742.50	64	2	277.00	587	26	2614.50	176	5	748.00	272	11	1137.00	1234	49	5519.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Hours

[7]Grade level not reported.

TABLE 14 - Continued

Courses	Grade Level	Regular Degree Major-Minor: Less than 5yrs. experience S	C	H	5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Neither: 5-10 yrs. experience S	C	H	Total S	C	H
Merchandising Information	12							72	2	270.00				72	2	270.00
Office Machines	11 - 12							49	2	183.75				49	2	183.75
Office Practices	N.R.	20	1	75.00										20	1	75.00
	12							81	5	376.50				81	5	376.50
	11 & 12				26	1	123.50	21	2	83.75				47	3	207.25
Total		20	1	75.00	26	1	123.50	102	7	460.25				148	9	658.75
Retailing	11	78	3	370.50										78	3	370.50
Shorthand	N.R.							64	3	152.00				64	3	152.00
	11				30	2	162.00	357	15	1624.75				387	17	1786.75
	12				19	1	104.50	179	11	838.25				198	12	942.75
	9 & 12							7	1	26.25				7	1	26.25
	10 & 11							74	3	362.00				74	3	362.00
	11 & 12				37	2	184.75	205	11	945.25				242	13	1130.00
Total					86	5	451.25	886	44	3948.50				972	49	4399.75
Transcription	11							2	1	6.50				2	1	6.50
	12				19	1	104.50	112	5	570.25				131	6	674.75
	11 & 12							23	1	86.25				23	1	86.25
Total					19	1	104.50	137	7	663.00				156	8	767.50
Typewriting	N.R.	20	1	75.00				274	9	1174.50				294	10	1249.50
	8							164	6	697.00				164	6	697.00
	9				226	6	960.50	294	11	1282.00				520	17	2242.50
	10	39	1	146.25	50	2	187.50	810	26	3458.50				899	29	3792.25
	11	101	3	378.75	89	3	365.25	235	9	1073.25				425	15	1817.25
	12				39	2	198.75	196	12	856.50				235	14	1055.25
	9 & 10							24	1	132.00				24	1	132.00
	9 & 12				42	2	199.50							42	2	199.50
	10 & 11							140	6	659.50				140	6	659.50
	10 - 12				73	2	401.50	928	30	4109.00				1001	32	4510.50
	11 & 12				79	4	375.25	622	31	2635.75				701	35	3011.00
Total		160	5	600.00	598	21	2688.25	3687	141	16078.00				4445	167	19366.25

TABLE 14 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

		Non-Degree															
		Less than 5 yrs. experience			Major-Minor[2] 5-10 yrs. experience			10 or more yrs. experience			Neither[3] 5-10 yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and	N.R.[7]							50	2	237.50				50	2	237.50
Bookkeeping	11							66	3	313.50				66	3	313.50
	12							19	1	90.25				19	1	90.25
Total								135	6	641.25				135	6	641.25
Business																
Mathematics	10				34	1	127.50							34	1	127.50
Filing	11 & 12				39	1	146.25							39	1	146.25
General	9										56	2	266.00	56	2	266.00
Business	10				35	1	131.25							35	1	131.25
	11							15	1	82.50				15	1	82.50
	10 - 12							40	1	220.00				40	1	220.00
Total					35	1	131.25	55	2	302.50	56	2	266.00	146	5	699.75
Office																
Practices	12							35	2	179.75				35	2	179.75
Shorthand	N.R.							18	1	99.00				18	1	99.00
	11							6	1	28.50				6	1	28.50
	12							25	2	127.75				25	2	127.75
Total								49	4	255.25				49	4	255.25
Transcription	N.R.							80	4	380.00				80	4	380.00
Typewriting	N.R.				32	1	120.00	210	6	1011.75				242	7	1131.75
	10				34	1	127.50	61	2	31[illegible] 75				95	3	438.25
	11				33	1	181.50	23	2	109.25				56	3	290.75
	12							6	1	28.50				6	1	28.50
	9 - 12	90	3	427.50										90	3	427.50
	10 - 12							27	1	148.50				27	1	148.50
	11 & 12							45	2	247.50				45	2	247.50
Total		90	3	427.50	99	3	429.00	372	14	1856.25				561	20	2712.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students

[5]Classes

[6]Houre

[7]Grade level not reported.

TABLE 15

TEACHERS OF BUSINESS EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH YEARS OF EXPERIENCE AND EDUCATIONAL BACKGROUND UNREPORTED ACCORDING TO NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

GRADE LEVEL

Courses	Unknown[2]			7			8			9			10			11			12			7-8		
	S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Accounting and Bookkeeping	4003	157	19382.00										2335	82	10764.00	1679	69	7836.50	1412	60	6615.75	25	1	137.50
Business Economics																			189	7	948.00			
Business English	512	21	2372.50										100	5	475.00	36	2	171.00	729	28	3296.50			
Business Law	495	20	2422.25										64	3	305.75	228	7	1083.00	864	34	3872.00			
Business Mathematics	761	28	3890.75				28	1	119.00	464	19	2050.50	1136	39	5237.25	70	3	352.75	205	8	894.75			
Business Organization																			89	3	395.75			
Cooperative Training for Distributive Occupations	120	5	570.00																35	2	247.50			
Cooperative Training for Office Occupations	531	26	3563.25																321	12	1823.75			
Distributive Education	60	3	285.00																44	2	183.00			
Economic Geography	338	12	1511.75	63	2	299.25				32	1	120.00	44	2	219.50									
Filing	88	3	359.00										130	4	617.50									
General Business	2163	74	9924.00				86	3	318.25	4422	158	19319.75	1559	55	7145.75				31	1	147.25			
Merchandising Information	28	1	182.00													12	1	66.00	58	2	247.50			
Office Machines	662	41	3214.25													78	4	381.00	751	38	1108.75			
Office Practices	700	37	3349.50							20	1	95.00				35	2	166.25	2079	107	9764.00			
Retailing	579	19	2736.25	32	1	152.00							13	1	61.75	212	7	996.00	342	12	1628.00			
Secretarial Practices	127	7	687.50													11	1	52.25	173	9	865.75			
Shorthand	2321	105	11140.00	16	2	76.00				18	1	85.50	264	13	1257.00	3374	153	15912.75	2222	134	10432.75	15	1	82.50
Notehand (Personal Use)																			22	7	104.50			
Transcription	626	31	2802.75													234	10	1065.50	506	22	2257.25			
Typewriting	11529	416	55145.25	127	4	539.75	569	18	2169.50	1223	45	5569.75	5390	196	24817.50	4927	196	22743.00	2838	119	13141.25	29	1	123.25
Introduction to Distribution																								
Unknown													310	9	1472.50	933	30	4414.75	304	13	1444.00			
Total	25643	1006	123538.00	238	9	1067.00	683	22	2606.75	6179	225	27240.50	11345	409	52373.50	11829	485	55240.75	13214	620	59418.00	69	3	343.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Grade level not reported.

[3]Students.

[4]Classes.

[5]Hours.

TABLE 15 - Continued

GRADE LEVEL

Courses	7-9 S	C	H	8-9 S	C	H	8-11 S	C	H	9-10 S	C	H	9-11 S	C	H	9-12 S	C	H	10-11 S	C	H	10-12 S	C	H	11-12 S	C	H	Total S	C	H
Accounting and Bookkeeping	21	1	99.75										114	4	632.50	77	3	401.75	421	20	1959.75	1241	44	5930.75	3258	125	15015.50	14586	566	68775.75
Business Economics																						23	1	109.25	47	2	152.75	259	10	1210.00
Business English																									44	3	209.00	1421	59	6524.00
Business Law																26	1	123.50				110	5	486.00	305	14	1460.00	2092	84	9752.50
Business Mathematics							21	1	99.75	73	3	346.75	31	1	147.25	330	13	1607.25	74	3	407.00	442	15	2060.25	386	14	1877.25	4021	148	19090.50
Business Organization																									69	3	342.50	158	6	738.25
Cooperative Training for Distributive Occupations																									13	1	61.75	168	8	879.25
Cooperative Training for Office Occupations																									51	3	216.75	903	41	5603.75
Distributive Education																						26	1	123.50	149	6	588.00	279	12	1179.50
Economic Geography																20	1	95.00	33	2	147.75	36	1	171.00	52	2	242.25	618	23	2806.50
Filing																			28	1	119.00	42	2	191.00	95	3	380.25	383	13	1666.75
General Business							424	16	1958.00							375	14	1659.75	356	13	1693.00	336	15	1650.00	149	6	696.25	9901	355	44512.00
Merchandising Information																						28	1	133.00				126	5	628.50
Office Machines																									113	6	464.75	1604	89	5168.75
Office Practices																						13	1	52.25	475	24	2142.75	3322	172	15569.75
Retailing																34	1	161.50				22	1	104.50	187	8	839.50	1421	50	6679.50
Secretarial Practices																												311	17	1605.50
Shorthand							14	1	66.50							28	1	133.00	88	4	430.00	233	9	1049.00	2404	118	11309.25	10997	542	51974.25
Notehand (Personal Use)																									54	2	202.50	76	9	307.00
Transcription																						17	1	72.25	72	4	344.25	1455	68	6542.00
Typewriting				656	20	2553.00	458	19	2027.50							598	23	2687.50	1906	71	8928.00	5272	192	25149.25	6228	253	29486.75	41750	1573	195081.25
Introduction to Distribution																														
Unknown																						13	1	61.75				1560	53	7393.00
Total	21	1	99.75	656	20	2553.00	21	1	99.75	969	39	4398.75	145	5	779.75	888	57	6869.25	2906	114	13684.50	7854	290	37343.75	14151	597	66032.00	97411	3903	453688.25

TABLE 16

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

		Advanced Degree														
		Major-Minor[2]									Neither[3]					
		Less than 5 yrs. experience			5-10 yrs. experience			10 or more yrs. experience			10 or more yrs. experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
Care & Guidance of Children	11 - 12							28	1	91.00				28	1	91.00
Clothing & Textiles	10										16	1	76.00	16	1	76.00
Home & Family Living	N.R.[7]				128	4	608.00							128	4	608.00
	11 - 12							39	1	126.75				39	1	126.75
Total					128	4	608.00	39	1	126.75				167	5	734.75
Homemaking & Health	8	39	2	146.25				90	5	389.50				129	7	535.75
	10 - 12	15	1	71.25										15	1	71.25
	11 - 12	17	1	80.75				32	1	104.00				49	2	184.75
Total		71	4	298.25				122	6	493.50				193	10	791.75
Hospital Service[8]	10 - 12				22	1	176.00							22	1	176.00
Unknown	10 - 12				22	1	176.00							22	1	176.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

[8]Taught in the Trade & Industrial curriculum.

TABLE 16 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Regular Degree

Courses	Grade Level	Major-Minor[2] Experience not indicated S[4] C[5] H[6]	Major-Minor[2] Less than 5 yrs. experience S C H	Major-Minor[2] 5-10 yrs. experience S C H	Major-Minor[2] 10 or more yrs. experience S C H	Neither[3] Less than 5 yrs. experience S C H	Neither[3] 10 or more yrs. experience S C H	Total S C H
Clothing & Textiles	8					45 3 247.50		45 3 247.50
	9		10 1 42.50			25 1 137.50		35 2 180.00
	10		26 2 97.50					26 2 97.50
Total			36 3 140.00			70 4 385.00		106 7 525.00
Foods & Nutrition	8					38 1 209.00	12 1 66.00	50 2 275.00
	9		50 2 237.50			37 2 203.50	16 1 88.00	103 5 529.00
	10		65 3 342.50					65 3 342.50
	12		10 1 55.00					10 1 55.00
	8 - 9		34 1 161.50					34 1 161.50
	9 - 12	27 1 128.25	28 1 133.00					55 2 261.25
	10 - 12	80 3 380.00	19 1 90.25					99 4 470.25
Total		107 4 508.25	206 9 1019.75			75 3 412.50	28 2 154.00	416 18 2094.50
Home & Family Living	8		53 2 225.25					53 2 225.25
	12		27 1 101.25	24 1 114.00				51 2 215.25
	10 - 12		29 1 137.75					29 1 137.75
	11 - 12		24 1 90.00	24 1 114.00				48 2 204.00
Total			133 5 554.25	48 2 228.00				181 7 782.25
Homemaking & Health	N.R.[7]	40 2 150.00						40 2 150.00
	7		176 8 749.50		66 3 247.50			242 11 997.00
	8	29 2 137.75	229 13 1014.75	76 2 361.00	42 5 157.50			376 20 1671.00
	9		318 16 1462.50	81 4 384.75				399 20 1847.25
	10		181 10 926.75	78 4 370.50				259 14 1297.25
	11		25 1 118.75	43 3 204.25				68 4 323.00
	12			68 4 323.00				68 4 323.00
	7 - 8			33 1 156.75				33 1 156.75
	9 - 10		9 1 42.75	13 1 61.75				22 2 104.50
	9 - 12			50 2 237.50				50 2 237.50
	10 - 11		14 1 59.50					14 1 59.50
	10 - 12			48 3 228.00				48 3 228.00
	11 - 12		114 7 530.75	15 1 71.25				129 8 602.00
Total		69 4 287.75	1066 57 4905.25	505 25 2389.75	108 6 405.00			1748 92 7996.75
Home Furnishings & Equipment	12					25 1 137.50		25 1 137.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

TABLE 16 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Non-Degree

Courses	Grade Level	Major-Minor[2] Experience not indicated S[4] C[5] H[6]	Major-Minor[2] Less than 5 yrs. experience S C H	Major-Minor[2] 5-10 yrs. experience S C H	Major-Minor[2] 10 or more yrs. experience S C H	Neither[3] Less than 5 yrs. experience S C H	Neither[3] 10 or more yrs. experience S C H	Total S C H
Clothing & Textiles	8	30 1 165.00						30 1 165.00
	9	20 1 110.00						20 1 110.00
	9 - 11					25 1 200.00		25 1 200.00
	9 - 12				142 6 461.50			142 6 461.50
	10 - 12					20 1 160.00		20 1 160.00
Total		50 2 275.00			142 6 461.50	45 2 360.00		237 10 1096.50
Commercial Cooking, Baking, Etc.[7]	12	12 1 96.00						12 1 96.00
	10 - 11						21 2 153.00	21 2 153.00
	11 - 12	13 1 104.00						13 1 104.00
Total		25 2 200.00					21 2 153.00	46 4 353.00
Foods & Nutrition	9 - 11	24 1 192.00						24 1 192.00
	9 - 12	35 2 162.50					20 1 65.00	55 3 227.50
	11 - 12	32 2 236.50						32 2 236.50
Total		91 5 591.00					20 1 65.00	111 6 656.00
Health[8]	8	28 1 133.00						28 1 133.00
Home & Family Living	11	25 1 118.75						25 1 118.75
	11 - 12				19 1 90.25			19 1 90.25
Total		25 1 118.75			19 1 90.25			44 2 209.00
Homemaking & Health	7			18 1 76.50				18 1 76.50
	8			18 1 85.50				40 2 168.00
	9	11 1 52.25		27 1 128.25	29 2 137.75	22 1 82.50		82 5 374.50
	10		29 2 159.50		23 1 109.25	15 1 56.25		52 3 268.75
	11		22 1 121.00		9 1 42.75			31 2 163.75
	12		7 1 38.50					7 1 38.50
	7 - 8		29 1 108.75					29 1 108.75
	9 - 12		37 2 138.75					37 2 138.75
	11 - 12	12 1 57.00	14 1 77.00					26 2 134.00
Total		23 2 109.25	138 8 643.50	63 3 290.25	61 4 289.75	37 2 138.75		322 19 1471.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Taught in the Trade & Industrial curriculum.

[8]Usually not considered as a specific Home Economics course but taught in Physical Education or Science.

TABLE 17

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PROVISIONAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Courses	Grade Level	Advanced Degree: Major-Minor[2] S[4]	C[5]	H[6]	Advanced Degree: Neither S	C	H	Regular Degree: Major-Minor S	C	H	Regular Degree: Neither[3] S	C	H	Total S	C	H
Care & Guidance of Children	10 - 12							58	2	188.50	36	1	117.00	94	3	305.50
	11 - 12	22	1	71.50				38	1	123.50				60	2	195.00
Total		22	1	71.50				96	3	312.00	36	1	117.00	154	5	500.50
Clothing & Textiles	N.R.[7]							20	1	110.00				20	1	110.00
	8	284	9	1284.00	45	2	247.50	423	14	1953.75	82	4	333.00	834	29	3818.25
	9	15	1	71.25				149	8	650.50	102	5	552.75	266	14	1274.50
	10				28	2	154.00							28	2	154.00
	11							22	1	104.50				22	1	104.50
	7 - 8							20	1	85.00				20	1	85.00
	8 - 9							28	1	119.00				28	1	119.00
	8 - 10							69	3	417.00				69	3	417.00
	9 - 11							61	3	222.25				61	3	222.25
	9 - 12	70	2	455.00				281	11	1149.75				351	13	1604.75
	10 - 11							93	4	362.25				93	4	362.25
	10 - 12	55	2	310.25										55	2	310.25
	11 - 12							36	2	117.00				36	2	117.00
Total		424	14	2120.50	73	4	401.50	1202	49	5291.00	184	9	885.75	1883	76	8698.75
Commercial Cooking, Baking, etc.[8]	9 - 10	42	2	236.25										42	2	236.25
Cosmetology[8]	11							50	2	400.00				50	2	400.00
	10 - 12							38	2	304.00				38	2	304.00
Total								88	4	704.00				88	4	704.00
Foods & Nutrition	7							70	3	273.00				70	3	273.00
	8	60	2	285.00				369	13	1596.75	305	12	1601.00	734	27	3482.75
	9	33	2	136.75	39	2	214.50	167	8	730.00	61	3	316.00	300	15	1397.25
	10	27	1	128.25							32	2	159.50	59	3	287.75
	11							25	1	162.50				25	1	162.50
	8 - 9							40	2	190.00				40	2	190.00
	8 - 10							44	1	352.00				44	1	352.00
	9 - 10							32	1	176.00				32	1	176.00
	9 - 12							141	6	592.50	57	2	270.75	198	8	863.25
	10 - 11	57	2	234.75				5	1	32.50				62	3	267.25
	10 - 12	87	4	478.50				250	11	1378.25				337	15	1856.75
	11 - 12	13	1	61.75										13	1	61.75
Total		277	12	1325.00	39	2	214.50	1143	47	5483.50	455	19	2347.25	1914	80	9370.25
Home & Family Living	N.R.							56	3	238.00				56	3	238.00
	8	198	6	842.50				301	7	1372.50				499	13	2215.00
	9							100	4	446.50				100	4	446.50
	12							124	6	560.50	78	3	313.50	202	9	874.00
	9 - 11	20	1	65.00										20	1	65.00
	10 - 12	88	4	433.00				105	4	406.50				193	8	839.50
	11 - 12	154	5	564.00				220	8	846.50				374	13	1410.50
Total		460	16	1904.50				906	32	3870.50	78	3	313.50	1444	51	6088.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

[8]Taught in the Trade & Industrial curriculum.

TABLE 17 - Continued

Courses	Grade Level	Advanced Degree Major-Minor S	C	H	Advanced Degree Neither S	C	H	Regular Degree Major-Minor S	C	H	Regular Degree Neither S	C	H	Total S	C	H
Homemaking & Health	N.R.							108	7	538.50				108	7	538.50
	7	93	3	395.25				1191	48	4819.00				1284	51	5214.25
	8	232	11	1097.50				1768	81	5307.50	54	3	229.50	2054	95	6634.50
	9	235	8	1042.25				1197	66	5465.75				1432	74	6508.00
	10	26	3	123.50				577	35	2724.50				603	38	2848.00
	11							72	5	336.25				72	5	336.25
	12	5	1	23.75				39	4	189.00				44	5	212.75
	7 - 8							98	3	458.50				98	3	458.50
	8 - 9	73	2	310.25				92	3	506.75				165	5	817.00
	9 - 10							107	5	494.25				107	5	494.25
	9 - 12							138	5	655.50				138	5	655.50
	10 - 11							42	3	213.00				42	3	213.00
	10 - 12	22	2	104.50				530	26	2484.25				552	28	2588.75
	11 - 12	33	2	119.25				353	26	1576.25				386	28	1695.50
Total		719	32	3216.25				6312	317	25769.00	54	3	229.50	7085	352	29214.75
Home Furnishings and Equipment	12							68	2	194.75	83	3	330.50	151	5	525.25
	11 - 12	18	1	85.50				37	1	120.25				55	2	205.75
Total		18	1	85.50				105	3	315.00	83	3	330.50	206	7	731.00
Unknown	7							54	2	256.50				54	2	256.50
	8							62	2	294.50				62	2	294.50
Total								116	4	551.00				116	4	551.00

TABLE 18

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Courses	Grade Level	Advanced Degree Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	Advanced Degree Major-Minor[2] 10 or more yrs. experience S	C	H	Neither[3] 10 or more yrs experience S	C	H	Total S	C	H
Care & Guidance of Children	10	26	1	84.50							26	1	84.50
	11	25	1	81.25	63	2	204.75				88	3	286.00
	12	31	1	100.75	50	2	162.50				81	3	263.25
	9 - 12	31	1	100.75							31	1	100.75
	10 - 11	25	1	81.25							25	1	81.25
	10 - 12				104	4	375.00				104	4	375.00
	11 - 12	29	1	94.25	75	2	243.75	58	2	188.50	162	5	526.50
Total		167	6	542.75	292	10	986.00	58	2	188.50	517	18	1717.25
Clothing & Textiles	7				32	1	152.00				32	1	152.00
	8	227	7	923.75	232	9	1225.00				459	16	2148.75
	9	111	5	381.75	29	1	123.25				140	6	505.00
	10	53	2	172.25	107	5	340.75				160	7	513.00
	11				28	1	182.00				28	1	182.00
	12				81	3	504.50				81	3	504.50
	7 - 8							100	5	425.00	100	5	425.00
	8 - 9	34	1	161.50							34	1	161.50
	9 - 10				100	4	449.75				100	4	449.75
	9 - 11				96	4	448.50				96	4	448.50
	9 - 12				485	19	1928.00				485	19	1928.00
	10 - 11				64	3	352.00				64	3	352.00
	10 - 12				595	21	2408.75				595	21	2408.75
	11 - 12				133	5	789.25	14	1	91.00	147	6	880.25
Total		425	15	1639.25	1982	76	8903.75	114	6	516.00	2521	97	11059.00
Commercial Cooking, Baking, etc.[8]	N.R.[7]	105	7	446.25							105	7	446.25
	9	14	1	59.50							14	1	59.50
	10 - 11				28	1	224.00				28	1	224.00
	10 - 12	19	1	152.00	47	1	176.25				66	2	328.25
Total		138	9	657.75	75	2	400.25				213	11	1058.00
Cosmetology[8]	12							49	2	392.00	49	2	392.00
Foods & Nutrition	7				62	2	263.50				62	2	263.50
	8	104	4	419.00	223	11	991.75				327	15	1410.75
	9	9	1	33.75	121	5	523.75				130	6	557.50
	10				123	6	582.25				123	6	582.25
	11				104	4	637.00				104	4	637.00
	12				147	5	756.25				147	5	756.25
	9 - 12	56	2	266.00	234	10	1097.50				290	12	1363.50
	10 - 11	23	1	109.25							23	1	109.25
	10 - 12	44	2	209.00	71	3	350.75				115	5	559.75
	11 - 12				22	1	104.50				22	1	104.50
Total		236	10	1037.00	1107	47	5307.25				1343	57	6344.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

[8]Taught in the Trade & Industrial curriculum.

TABLE 18 - Continued

Courses	Grade Level	Advanced Degree Major-Minor 5-10 yrs. experience S	C	H	Advanced Degree Major-Minor 10 or more yrs. experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Home & Family Living	8	134	4	566.00	115	4	472.75	178	5	756.50	427	13	1795.25
	10				33	2	181.50				33	2	181.50
	11				57	2	195.25				57	2	195.25
	12	98	3	379.50	282	10	922.75				380	13	1302.25
	9 - 12	65	2	211.25							65	2	211.25
	10 - 12	66	2	214.50	146	5	659.00				212	7	873.50
	11 - 12	184	5	598.00	269	9	874.25	101	3	361.75	554	17	1834.00
Total		547	16	1969.25	902	32	3305.50	279	8	1118.25	1728	56	6393.00
Homemaking & Health	N.R.				9	2	58.50				9	2	58.50
	7	84	5	261.75	159	6	591.00				243	11	852.75
	8	657	26	3102.25	1846	73	8654.25				2503	99	11756.50
	9	213	12	902.25	353	17	1621.50				566	29	2523.75
	10	51	2	198.75	149	7	728.75				200	9	927.50
	11	163	7	774.25							163	7	774.25
	12				23	2	116.00				23	2	116.00
	8 - 9				36	1	135.00				36	1	135.00
	9 - 12				114	5	541.50				114	5	541.50
	10 - 11	48	2	215.00							48	2	215.00
	10 - 12	57	3	270.75	313	13	1439.50				370	16	1710.25
	11 - 12	83	4	299.25	194	9	932.50				277	13	1231.75
Total		1356	61	6024.25	3196	135	14818.50				4552	196	20842.75
Home Furnishings and Equipment	11				29	1	108.75				29	1	108.75
	12	7	1	29.75	427	15	1414.00				434	16	1443.75
	10 - 12	72	3	246.00	57	2	185.25				129	5	431.25
	11 - 12	54	2	190.00	40	1	130.00				94	3	320.00
Total		133	6	465.75	553	19	1838.00				686	25	2303.75
Hospital Service[8]	10 - 12				129	3	795.50				129	3	795.50
Unknown	9	32	1	208.00							32	1	208.00
	10				25	1	81.25				25	1	81.25
Total		32	1	208.00	25	1	81.25				57	2	289.25

TABLE 18 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Courses	Grade Level	Regular Degree Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	10 or more yrs. experience S	C	H	Neither[3] 5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Experience not indicated S	C	H	Total S	C	H
Care & Guidance of Children	10 - 12				66	2	214.50										66	2	214.50
	11 - 12	138	5	552.50													138	5	552.50
Total		138	5	552.50	66	2	214.50										204	7	767.00
Clothing & Textiles	8	222	8	974.50	244	9	1148.50	108	4	594.00							574	21	2717.00
	9	244	11	1082.00	158	7	686.00	68	4	374.00							470	22	2142.00
	10	118	5	496.00	74	3	263.50										192	8	759.50
	11	30	2	138.75				19	1	104.50							49	3	243.50
	8 & 9	31	1	147.25													31	1	147.25
	9 - 10	18	1	58.50													18	1	58.50
	9 - 12	193	7	646.75	174	6	841.75										367	13	1488.50
	10 - 12	259	10	1325.50	23	1	126.50										282	11	1452.00
	11 - 12	100	4	404.50	24	1	156.00										124	5	560.50
Total		1215	49	5273.75	697	27	3222.25	195	9	1072.50							2107	85	9568.50
Commercial Cooking, Baking, etc.[8]	N.R.[7]	90	6	495.00													90	6	495.00
	10 - 11	15	1	82.50													15	1	82.50
Total		105	7	577.50													105	7	577.50
Foods & Nutrition	8	260	8	1105.50	106	4	487.50	32	1	176.00	24	2	132.00				422	15	1901.00
	9	111	4	510.75	147	5	574.25				8	1	44.00				266	10	1129.00
	10	181	7	859.75	111	4	639.25										292	11	1499.00
	11	127	5	748.50													127	5	748.50
	7 - 8	120	6	510.00													120	6	510.00
	9 - 12	26	1	84.50	96	3	456.00										122	4	540.50
	10 - 11				26	1	110.50										26	1	110.50
	10 - 12	22	1	104.50													22	1	104.50
Total		847	32	3923.50	486	17	2267.50	32	1	176.00	32	3	176.00				1397	53	6543.00
Home & Family Living	8	114	3	446.50													114	3	446.50
	9	33	1	123.75													69	2	276.75
	10	21	1	68.25	59	1	221.25				36	1	153.00				80	2	289.50
	11				69	2	246.75										69	2	246.75
	12	50	2	292.00	97	5	332.25										147	7	624.25
	10 - 12				21	1	68.25										21	1	68.25
	11 - 12	194	6	686.00	60	2	195.00										254	8	881.00
Total		412	13	1616.50	306	11	1063.50				36	1	153.00				754	25	2833.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

[8]Taught in the Trade & Industrial curriculum.

TABLE 18 - Continued

Courses	Grade Level	Regular Degree Major-Minor: 5-10 yrs. experience S	C	H	Regular Degree Major-Minor: 10 or more yrs. experience S	C	H	Neither: 5-10 yrs. experience S	C	H	Neither: 10 or more yrs. experience S	C	H	Experience not indicated S	C	H	Total S	C	H
Homemaking & Health	N.R.	118	7	617.50	8	1	44.00										126	8	661.50
	7	152	6	583.00	342	15	452.75							42	2	178.50	536	23	1214.25
	8	1528	71	6665.00	1651	73	6661.25				27	1	114.75				3206	145	13441.00
	9	480	27	2264.00	865	44	3960.00										1345	71	6224.00
	10	330	15	1476.00	271	16	1230.00										601	31	2706.00
	11	47	2	204.25	87	4	371.25										134	6	575.50
	12	24	1	114.00	17	1	80.75										41	2	194.75
	7 - 8	19	1	104.50	27	2	122.25										46	3	226.75
	9 - 10	52	3	256.00													52	3	256.00
	9 - 12	81	3	303.75	209	10	992.75										290	13	1296.50
	10 - 11	55	4	253.25													55	4	253.25
	10 - 12	111	5	527.25	147	5	850.75										258	10	1378.00
	11 - 12	177	11	894.00	205	14	909.25										382	25	1803.25
Total		3174	156	14262.50	3829	185	15675.00				27	1	114.75	42	2	178.50	7072	344	30230.75
Home Furnishings & Equipment	11				22	1	71.50										22	1	71.50
	12	164	5	533.00	156	5	562.00										320	10	1095.00
	10 - 12				21	1	52.50										21	1	52.50
Total		164	5	533.00	199	7	686.00										363	12	1219.00
Hospital Service[8]	12				51	1	191.25										51	1	191.25
Unknown	7	122	4	565.50	58	2	275.50										180	6	841.00
	8	36	1	171.00	62	2	294.50										98	3	465.50
Total		158	5	736.50	120	4	570.00										278	9	1306.50

TABLE 19

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Advanced Degree

Courses	Grade Level	Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	Major-Minor[2] 10 or more yrs. experience S	C	H	Neither[3] 10 or more yrs experience S	C	H	Total S	C	H
Clothing & Textiles	7							120	4	510.00	120	4	510.00
	8							61	3	283.00	61	3	283.00
	9				22	1	55.00	26	1	143.00	48	2	198.00
	10				21	1	68.25				21	1	68.25
	11							17	1	93.50	17	1	93.50
	12				22	1	71.50	10	1	55.00	32	2	126.50
	10 - 11				29	1	123.25				29	1	123.25
	10 - 12				120	5	683.00				120	5	683.00
Total					214	9	1001.00	234	10	1084.50	448	19	2085.50
Commercial Cooking, Baking, Etc.[7]	9 - 11							24	1	78.00	24	1	78.00
	11 - 12							20	1	160.00	20	1	160.00
Total								44	2	238.00	44	2	238.00
Consumer Ed. & Housing	8							29	1	159.50	29	1	159.50
Foods & Nutrition	8							48	2	264.00	48	2	264.00
	9				25	2	62.50	29	1	159.50	54	3	222.00
	10							18	1	99.00	18	1	99.00
	9 - 12				48	2	228.00				48	2	228.00
	10 - 12				17	1	80.75				17	1	80.75
Total					90	5	371.25	95	4	522.50	185	9	893.75
Home & Family Living	8				40	1	130.00				40	1	130.00
	9							24	1	102.00	24	1	102.00
	12	27	1	148.50	122	5	474.50				149	6	623.00
	11 - 12							123	3	584.25	123	3	584.25
Total		27	1	148.50	162	6	604.50	147	4	686.25	336	11	1439.25
Homemaking & Health	7				245	9	1023.75				245	9	1023.75
	8	83	3	346.75	523	22	1893.75				606	25	2240.50
	9	61	3	276.75	388	17	698.75				449	20	975.50
	10				254	11	1212.25				254	11	1212.25
	11				21	1	99.75				21	1	99.75
	12				82	5	389.50				82	5	389.50
	7 - 8	18	2	45.00							18	2	45.00
	9 - 12				46	2	218.50				46	2	218.50
	10 - 12	13	1	48.75	47	2	223.25	86	4	408.50	146	7	680.50
	11 - 12				188	8	910.25				188	8	910.25
Total		175	9	717.25	1794	77	6669.75	86	4	408.50	2055	90	7795.50
Home Furnishings & Equipment	12							24	1	132.00	24	1	132.00
Unknown	7							60	2	285.00	60	2	285.00
	9							54	2	256.50	54	2	256.50
Total								114	4	541.50	114	4	541.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Taught in the Trade & Industrial curriculum.

TABLE 19 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Regular Degree

Major-Minor[2]

Courses	Grade Level	Less than 5yrs. experience S[3]	C[4]	H[5]	5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Total S	C	H
Care & Guidance of Children	12							23	1	109.25	23	1	109.25
	11 - 12							20	1	95.00	20	1	95.00
Total								43	2	204.25	43	2	204.25
Clothing & Textiles	7							144	5	628.50	144	5	628.50
	8							194	8	775.00	194	8	775.00
	9				61	3	300.50	96	4	413.00	157	7	713.50
	10	25	1	137.50							25	1	137.50
	7 - 8							100	5	425.00	100	5	425.00
	10 - 12				78	3	507.00	53	3	251.75	131	6	758.75
	11 - 12							112	5	532.00	112	5	532.00
Total		25	1	137.50	139	6	807.50	699	30	3025.25	863	37	3970.25
Commercial Cooking, Baking, Etc.[7]	N.R.[6]							30	2	127.50	30	2	127.50
	8							29	2	157.00	29	2	157.00
	9							35	2	148.75	35	2	148.75
	8 - 9							24	1	102.00	24	1	102.00
Total								118	7	535.25	118	7	535.25
Foods & Nutrition	N.R.							20	1	75.00	20	1	75.00
	7							266	8	28.50	266	8	28.50
	8							28	2	79.00	28	2	79.00
	9							102	3	464.50	102	3	464.50
	10	21	1	115.50	46	2	211.00	45	2	213.75	112	5	540.25
	12							24	1	60.00	24	1	60.00
	10 - 12				47	2	223.25	275	11	1420.50	322	13	1643.75
	11 - 12				21	1	99.75	33	2	156.75	54	3	256.50
Total		21	1	115.50	114	5	534.00	793	30	2498.00	928	36	3147.50
Health[8]	N.R.				60	2	285.00				60	2	285.00
	8							23	1	86.25	23	1	86.25
Total					60	2	285.00	23	1	86.25	83	3	371.25
Home & Family Living	N.R.							40	2	190.00	40	2	190.00
	9							26	1	97.50	26	1	97.50
	10	35	1	192.50				25	1	118.75	60	2	311.25
	11							27	1	128.25	27	1	128.25
	12							127	5	476.25	127	5	476.25
	11 - 12							99	4	470.25	99	4	470.25
Total		35	1	192.50				344	14	1481.00	379	15	1673.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Students.

[4]Classes.

[5]Hours.

[6]Grade level not reported.

[7]Taught in the Trade & Industrial curriculum.

[8]Usually not considered as a specific Home Economics course but taught in Physical Education or Science.

TABLE 19 - Continued

Regular Degree

Courses	Grade Level	Less than 5yrs experience S	C	H	Major-Minor 5-10 yrs. experience S	C	H	10 or more yrs. experience S	C	H	Total S	C	H
Homemaking & Health	N.R.							57	5	237.75	57	5	237.75
	7				63	2	267.75	826	34	3137.00	889	36	3404.75
	8	203	9	956.00	171	6	749.75	1092	43	4707.50	1466	58	6413.25
	9	49	3	259.75	227	14	1077.75	648	38	3076.00	924	55	4413.50
	10	29	2	159.50	93	6	437.25	589	32	2794.50	711	40	3391.25
	11	13	1	48.75	61	3	289.75	314	16	1463.00	388	20	1801.50
	12	12	1	45.00	24	1	114.00	247	12	1192.00	283	14	1351.00
	7 - 8				34	2	123.50	146	8	638.50	180	10	762.00
	9 - 10							101	5	548.50	101	5	548.50
	9 - 12				28	1	56.00				28	1	56.00
	10 - 12							94	5	454.50	94	5	454.50
	11 - 12												
Total		306	16	1469.00	743	38	3308.75	4416	217	19711.50	5465	271	24489.25
Home Furnishings & Equipment	10	10	1	55.00							10	1	55.00
	11							31	1	116.25	31	1	116.25
	12							47	2	223.25	47	2	223.25
	10 - 12							52	2	247.00	52	2	247.00
	11 - 12							28	1	154.00	28	1	154.00
Total		10	1	55.00				158	6	740.50	168	7	795.50
Unknown	N.R.							40	2	190.00	40	2	190.00

TABLE 19 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

		Regular Degree Neither[2]									Non-Degree Major-Minor[3]					
		Less than 5 yrs. experience			5-10 yrs. experience			10 or more yrs experience			10 or more yrs experience			Total		
Courses	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
Clothing & Textiles	8	28	1	133.00				197	8	851.00				225	9	984.00
	9							50	3	254.00				50	3	254.00
	10							30	2	165.00				30	2	165.00
	7 - 8							100	5	425.00				100	5	425.00
Total		28	1	133.00				377	18	1695.00				405	19	1828.00
Home & Family Living	9				37	1	157.25							37	1	157.25
Homemaking & Health	7										19	1	61.75	19	1	61.75
	8							64	4	273.50	28	1	91.00	92	5	364.50
	9										23	1	109.25	23	1	109.25
	10										8	1	38.00	8	1	38.00
	7 - 8										19	1	71.25	19	1	71.25
	9 - 12										20	1	95.00	20	1	95.00
	11 - 12										5	1	23.75	5	1	23.75
Total								64	4	273.50	122	7	490.00	186	11	763.50
Home Furnishings & Equipment	12	22	1	104.50										22	1	104.50
Unknown	12	24	1	114.00										24	1	114.00

[1]Students hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[3]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

TABLE 20

TEACHERS OF HOME ECONOMICS COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH YEARS OF EXPERIENCE AND EDUCATIONAL BACKGROUND UNREPORTED ACCORDING TO NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Grade Level

Courses	Unknown[2]			7			8			9			10			11			12		
	S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Care & Guidance of Children	54	2	256.50																		
Clothing & Textiles	460	21	2441.75	198	10	843.75	164	8	655.50	119	6	536.25	162	8	805.50	56	3	308.50	30	2	151.50
Commercial Cooking, Baking, Etc.[6]																					
Consumer Ed. & Housing																					
Cosmetology[6]							26	1	110.50												
Foods & Nutrition	237	15	1255.00	121	6	512.75	147	8	636.25	100	5	341.25	110	6	567.50	78	4	383.50			
Health[7]	71	3	346.25																		
Home & Family Living	1403	56	6980.50	234	11	1111.50	384	17	1736.50	153	7	726.75	186	6	1023.00	28	1	133.00	2184	90	10166.00
Homemaking & Health	4447	172	21724.75	3780	172	16355.00	6330	321	27203.50	9855	491	47154.50	4968	289	20171.50	1665	92	7291.75	1351	78	6516.50
Home Furnishings & Equipment	32	5	612.25				70	3	352.00	41	2	194.75	20	1	95.00	42	2	157.50	138	6	644.00
Hospital Service[6]																					
Unclassified or Unknown																					
Total	6704	274	33617.00	4333	199	18823.00	7121	358	30694.25	D268	511	48953.50	5446	310	22662.50	1869	D2	8274.25	3741	178	17645.00

Courses	7-8			8-9			9-10			9-11			9-12			10-11			10-12			11-12			Total		
	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Care & Guidance of Children																									54	2	256.50
Clothing & Textiles	21	1	78.75										39	2	185.25	12	1	57.00	95	6	381.00	93	6	423.75	1449	74	6868.50
Commercial Cooking, Baking, Etc.																											
Consumer Ed. & Housing																											
Cosmetology																											
Foods & Nutrition	22	1	82.50																			10	1	55.00	36	2	165.50
Health													27	1	114.75												
Home & Family Living							31	1	170.50										165	10	718.75	40	3	190.00	1047	59	4802.25
Homemaking & Health	714	32	3247.25	162	6	680.00	553	30	2616.25	145	7	688.75	43	2	217.00				25	1	106.25	821	36	3918.50	71	3	346.25
Home Furnishings & Equipment													478	27	2328.00	551	30	2616.50	776	46	3308.25	2742	163	14591.50	5492	228	26289.50
Hospital Service																									38517	1956	176494.00
Unclassified or Unknown																						23	1	97.75	366	20	2153.25
Total	757	34	3408.50	162	6	680.00	584	31	2786.75	145	7	688.75	629	34	3076.00	563	31	2673.50	1061	63	4514.25	3729	210	19276.50	47112	2348	217773.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Grade level not reported.

[3]Students.

[4]Classes.

[5]Hours.

[6]Taught in the Trade & Industrial curriculum.

[7]Usually not considered as a specific Home Economics course but taught in Physical Education or Science.

TABLE 21

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Courses*	Grade Level	Advanced Degree: Major-Minor[2] 5-10 yrs experience S[4] C[5] H[6]	Advanced Degree: Major-Minor[2] 10 or more yrs experience S C H	Regular Degree: Major-Minor Experience not indicated S C H	Regular Degree: Major-Minor Less than 5 yrs experience S C H	Regular Degree: Major-Minor 5-10 yrs experience S C H	Regular Degree: Major-Minor 10 or more yrs experience S C H	Regular Degree: Neither[3] 10 or more yrs experience S C H	Total S C H
Industrial Arts	9					74 3 351.50			74 3 351.50
General Shop	N.R.[7]			20 1 75.00					20 1 75.00
	7				30 2 122.50				30 2 122.50
	8			40 2 170.00					40 2 170.00
	9					75 3 356.25			75 3 356.25
	10					48 2 228.00			48 2 228.00
	9 - 10				18 1 85.50				18 1 85.50
	10 - 12					19 1 90.25			19 1 90.25
	11 - 12				10 1 65.00				10 1 65.00
Total				60 3 245.00	58 4 273.00	142 6 674.50			260 13 1192.50
Wood Shop	N.R.			20 1 75.00					20 1 75.00
	10				31 1 201.50				31 1 201.50
	10 - 11					25 1 118.75			25 1 118.75
	10 - 12					17 1 80.75			17 1 80.75
Total				20 1 75.00	31 1 201.50	42 2 199.50			93 4 476.00
Machine Wood-Work	11 - 12				88 3 572.00				88 3 572.00
Metal Shop & Metal Fitting	10				25 1 162.50				25 1 162.50
Machine Shop	10				22 1 104.50				22 1 104.50
	10 - 11				40 2 260.00				40 2 260.00
	10 - 12				30 1 195.00				30 1 195.00
	11 - 12		17 1 136.00				24 2 192.00		41 3 328.00
Total			17 1 136.00		92 4 559.50		24 2 192.00		133 7 887.50
Welding	N.R.			16 1 76.00					16 1 76.00
Electricity	10				30 1 112.50				30 1 112.50
Drafting	7				25 1 106.25				25 1 106.25
	8				35 2 148.75				35 2 148.75
	9				20 1 85.00				20 1 85.00
Total					80 4 340.00				80 4 340.00
Mechanical Drawing	10				26 1 169.00				26 1 169.00
	12							1 1 3.25	1 1 3.25
	10 - 11	90 3 427.50							90 3 427.50
	10 - 12					19 1 90.25			19 1 90.25
Total		90 3 427.50			26 1 169.00	19 1 90.25		1 1 3.25	136 6 690.00
Auto Mechanics & Shop	10				86 4 408.50				86 4 408.50
Bump & Paint Shop - Auto Body	11 - 12						44 2 352.00		44 2 352.00
Co-Op Training T & I	12							11 1 60.50	11 1 60.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 16 for Hospital Service.

TABLE 21 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH SPECIAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Non-Degree

		Major-Minor[2]									Neither[3]					
		Experience unknown			Less than 5yrs experience			More than 10yrs experience			More than 10 yrs. experience			Total		
Courses*	Grade Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
General Shop	N.R.[7]							99	6	470.25				99	6	470.25
	7				28	1	119.00							28	1	119.00
	8	38	1	95.00	89	5	399.75	61	3	437.00				188	9	931.75
	9				31	2	147.25							31	2	147.25
	10				21	1	99.75							21	1	99.75
	11				21	1	99.75							21	1	99.75
	12				13	1	61.75							13	1	61.75
	7 - 8							21	1	89.25				21	1	89.25
	8 - 9										12	1	45.00	12	1	45.00
	9 - 12							7	1	29.75				7	1	29.75
	10 - 12				12	1	57.00							12	1	57.00
	11 - 12				21	1	99.75							21	1	99.75
Total		38	1	95.00	236	13	1084.00	188	11	1026.25	12	1	45.00	474	26	2250.25
Wood Shop	9 - 10							63	2	267.75				63	2	267.75
	9 - 12							56	2	238.00				56	2	238.00
	11 - 12							24	1	102.00				24	1	102.00
Total								143	5	607.75				143	5	607.75
Pattern Making	10										18	2	85.50	18	2	85.50
	11										25	2	118.75	25	2	118.75
	12										7	1	33.25	7	1	33.25
Total											50	5	237.50	50	5	237.50
Bench Metal	9 - 11										14	1	52.50	14	1	52.50
Foundry	10										23	3	109.25	23	3	109.25
	11										32	2	152.00	32	2	152.00
	12										13	1	61.75	13	1	61.75
Total											68	6	323.00	68	6	323.00
Machine Shop	9										19	1	152.00	19	1	152.00
	10							52	2	247.00	42	3	199.50	94	5	446.50
	11	36	2	153.00							23	2	109.25	59	4	262.25
	12	45	3	191.25							23	2	167.75	68	5	359.00
	11 - 12				99	4	470.25							99	4	470.25
Total		81	5	344.25	151	6	717.25				107	8	628.50	339	19	1690.00
Power Machinery	10										25	3	118.75	25	3	118.75
	11										18	2	85.50	18	2	85.50
	12										7	1	33.25	7	1	33.25
Total											50	6	237.50	50	6	237.50
Welding	N.R.							16	1	28.50				16	1	28.50
	10							40	2	190.00	28	3	133.00	68	5	323.00
	11										26	2	123.50	26	2	123.50
	12										12	1	57.00	12	1	57.00
	9 - 10	25	1	200.00										25	1	200.00
	9 - 12										63	3	394.75	63	3	394.75
	10 - 12	23	1	184.00										23	1	184.00
	11 - 12				20	1	160.00							20	1	160.00
Total		48	2	384.00	76	4	378.50				129	9	708.25	253	15	1470.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 16 for Commercial Cooking, Baking, etc.

TABLE 21 - Continued

Non-Degree

Courses	Grade Level	Experience unknown S	C	H	Major-Minor Less than 5yrs experience S	C	H	10 or more yrs experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Electricity	10							16	1	76.00				16	1	76.00
	11 - 12							18	1	144.00				18	1	144.00
Total								34	2	220.00				34	2	220.00
Drafting	8							32	1	256.00				32	1	256.00
	10										24	3	114.00	24	3	114.00
	11										40	2	190.00	40	2	190.00
	12										16	1	76.00	16	1	76.00
	9 - 10										16	1	60.00	16	1	60.00
Total								32	1	256.00	96	7	440.00	128	8	696.00
Mechanical Drawing	N.R.										23	1	86.25	23	1	86.25
Printing & Print Design	11										27	3	128.25	27	3	128.25
Paint Shop	N.R.										23	1	184.00	23	1	184.00
Painting & Decorating	10 - 12										46	2	368.00	46	2	368.00
Commercial Art	9 - 12							40	2	320.00				40	2	320.00
Auto Mechanics	9 - 10										21	1	78.75	21	1	78.75
& Shop	12							66	3	280.50				66	3	280.50
	11 - 12							171	8	785.25				171	8	785.25
Total								237	11	1065.75	21	1	78.75	258	12	1144.50
Bump & Paint Shop - Auto Body	9 - 12				41	2	328.00							41	2	328.00
Power Plant	12				28	5	126.25							28	5	126.25
Air Frame	11 - 12				10	2	80.00							10	2	80.00
Shoe Repair	N.R.										19	2	152.00	19	2	152.00
Shop Mathematics & Industrial Construction Mathematics	N.R.										46	2	172.50	46	2	172.50

TABLE 22

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL EDUCATION COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PROVISIONAL CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

		Advanced Degree						Regular Degree								
	Grade	Major-Minor[2]			Neither[3]			Major-Minor			Neither			Total		
Courses*	Level	S[4]	C[5]	H[6]	S	C	H	S	C	H	S	C	H	S	C	H
Industrial Arts	N.R.[7]							22	1	104.50				22	1	104.50
	7							529	16	2432.25				529	16	2432.25
	8	63	2	283.25				730	34	3649.75	60	2	280.50	853	38	4213.50
	9	17	1	110.50				310	14	1388.50				327	15	1499.00
	10							60	3	277.50				60	3	277.50
	12							13	1	61.75				13	1	61.75
	7 & 8							58	3	236.50				58	3	236.50
	8 - 9							34	1	127.50				34	1	127.50
	9 - 10							28	2	144.00				28	2	144.00
	9 - 11	19	1	123.50										19	1	123.50
	9 - 12							18	1	117.00				18	1	117.00
	10 - 11							36	2	166.50				36	2	166.50
	10 - 12							49	3	235.00				49	3	235.00
	11 - 12							113	6	488.75				113	6	488.75
Total		99	4	517.25				2000	87	9429.50	60	2	280.50	2159	93	10227.25
General Shop	N.R.							197	11	944.00				197	11	944.00
	7	36	1	171.00				252	12	883.25				288	13	1054.25
	8	136	6	555.00				1773	80	7821.25				1909	86	8376.25
	9	16	1	76.00				1205	63	5365.75	35	3	166.25	1256	67	5608.00
	10	19	1	90.25				368	22	1689.50				387	23	1779.75
	11							95	6	424.25				95	6	424.25
	12							51	3	233.25				51	3	233.25
	7 - 8							141	7	614.25				141	7	614.25
	8 - 9							58	3	374.75				58	3	374.75
	8 - 10							92	4	536.25				92	4	536.25
	9 - 10							62	3	241.00				62	3	241.00
	9 - 12							15	1	82.50				15	1	82.50
	10 - 11							123	7	565.25				123	7	565.25
	10 - 12							116	8	554.25				116	8	554.25
	11 - 12							256	19	1174.75				256	19	1174.75
Total		207	9	892.25				4804	249	21504.25	35	3	166.25	5046	261	22562.75
Wood Shop	7							202	8	857.00				202	8	857.00
	8							728	32	3075.50	27	2	148.50	755	34	3224.00
	9	23	1	86.25				389	18	1659.00				412	19	1745.25
	10							220	11	1065.25				220	11	1065.25
	11							42	2	199.50				42	2	199.50
	12							43	2	204.25				43	2	204.25
	8 - 9							22	1	93.50				22	1	93.50
	9 - 12	117	4	438.75				146	6	693.50				263	10	1132.25
	10 - 11	38	2	180.50										38	2	180.50
	10 - 12	90	4	427.50				48	2	228.00				138	6	655.50
	11 - 12	40	2	190.00				24	1	114.00				64	3	304.00
Total		308	13	1323.00				1864	83	8189.50	27	2	148.50	2199	98	9661.00
Bench Wood	9 - 10							52	3	195.00				52	3	195.00
Cabinet & Furniture Making	11										16	1	88.00	16	1	88.00
Carpentry (Building Construction)	9 - 12	16	1	60.00										16	1	60.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 17 for Commercial Cooking, Baking, etc.; and Cosmetology.

TABLE 22 - Continued

Courses	Grade Level	Advanced Degree Major-Minor S	C	H	Advanced Degree Neither S	C	H	Regular Degree Major-Minor S	C	H	Regular Degree Neither S	C	H	Total S	C	H
Metal Shop & Metal Fitting	N.R.	20	1	130.00										20	1	130.00
	8	228	11	922.00				656	27	2828.50				884	38	3750.50
	9	168	7	721.50				1000	36	4172.00				1168	43	4893.50
	10							312	13	1377.75				312	13	1377.75
	11							15	1	56.25				15	1	56.25
	12							12	2	56.00				12	2	56.00
	9 - 12							92	4	437.00				92	4	437.00
	10 - 11	73	3	346.75										73	3	346.75
	10 - 12	50	2	275.00				90	5	420.50				140	7	695.50
	11 - 12	28	2	133.00				31	3	192.75				59	5	325.75
Total		567	26	2528.25				2208	91	9540.75				2775	117	12069.00
Bench Metal	10							26	1	84.50				26	1	84.50
	9 - 10							85	4	293.25				85	4	293.25
	9 - 12							16	1	60.00				16	1	60.00
Total								127	6	437.75				127	6	437.75
Machine Hand Tools	10							20	1	95.00				20	1	95.00
	12							21	1	99.75				21	1	99.75
Total								41	2	194.75				41	2	194.75
Machine Shop	8							122	5	457.50	33	2	156.75	155	7	614.25
	9							25	1	137.50	43	2	204.25	68	3	341.75
	10	87	5	474.50				186	10	916.00	18	1	85.50	291	16	1476.00
	12							17	1	80.75				17	1	80.75
	9 - 12							116	7	507.25				116	7	507.25
	10 - 12							471	20	2750.50				471	20	2750.50
	11 - 12	24	1	156.00				212	11	1282.50				236	12	1438.50
Total		111	6	630.50				1149	55	6132.00	94	5	446.50	1354	66	7209.00
Machine Metal Work	11							26	1	110.50				26	1	110.50
	11 - 12							37	2	114.75				37	2	114.75
Total								63	3	225.25				63	3	225.25
Power Machinery	N.R.							23	1	109.25				23	1	109.25
	9	36	2	153.00				48	2	204.00				84	4	357.00
	10							79	4	375.25				79	4	375.25
	11 - 12							163	7	901.00				163	7	901.00
Total		36	2	153.00				313	14	1589.50				349	16	1742.50
Welding	N.R.							25	1	200.00				25	1	200.00
	9 - 12							58	3	217.50				58	3	217.50
	10 - 12	40	2	320.00				45	3	278.25				85	5	598.25
	11 - 12							15	1	71.25				15	1	71.25
Total		40	2	320.00				143	8	767.00				183	10	1087.00
Electricity	8							20	1	85.00	62	4	341.00	82	5	426.00
	9										23	1	126.50	23	1	126.50
	10							230	9	1056.25				230	9	1056.25
	11										15	1	82.50	15	1	82.50
	9 - 12							48	2	228.00				48	2	228.00
	10 - 11							22	1	104.50				22	1	104.50
	10 - 12							38	2	180.50				38	2	180.50
	11 - 12							27	2	117.25				27	2	117.25
Total								385	17	1771.50	100	6	550.00	485	23	2321.50
Radio Electronics	10							25	3	118.75				25	3	118.75
	11							39	3	185.25				39	3	185.25
	10 - 12				30	1	142.50	88	4	418.00				118	5	560.50
	11 - 12				22	1	104.50	18	1	85.50				40	2	190.00
Total					52	2	247.00	170	11	807.50				222	13	1054.50

TABLE 22 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor S	C	H	Advanced Degree: Neither S	C	H	Regular Degree: Major-Minor S	C	H	Regular Degree: Neither S	C	H	Total S	C	H
Electrical Mechanics	11 - 12	25	1	200.00										25	1	200.00
Drafting	7							101	4	416.75				101	4	416.75
	8	353	11	1649.25				470	15	2098.00				823	26	3747.25
	9	192	7	797.75				956	32	3951.75				1148	39	4749.50
	10	186	5	1142.75	87	3	367.25	156	6	828.00				429	14	2338.00
	11	66	2	232.00				7	1	33.25				73	3	265.25
	12	114	4	402.00										114	4	402.00
	8 - 12							16	1	128.00				16	1	128.00
	9 - 10							85	4	306.25				85	4	306.25
	9 - 11							115	4	373.75				115	4	373.75
	9 - 12	34	1	110.50				319	11	1443.25				353	12	1553.75
	10 - 11	26	1	84.50				18	1	85.50				44	2	170.00
	10 - 12	148	5	664.75				41	2	133.25				189	7	798.00
	11 - 12							53	3	297.75				53	3	297.75
Total		1119	36	5083.50	87	3	367.25	2337	84	10095.50				3543	123	15546.25
Mechanical Drawing	N.R.							107	6	473.25				107	6	473.25
	7							90	3	382.50				90	3	382.50
	8							127	4	619.75				127	4	619.75
	9							169	8	758.75	89	4	489.50	258	12	1248.25
	10	74	4	313.50				103	4	489.25	23	1	126.50	200	9	929.25
	11	64	3	304.00				15	1	82.50				79	4	386.50
	12							16	3	265.00				16	3	265.00
	8 - 9							66	2	280.50				66	2	280.50
	8 - 10							71	3	266.25				71	3	266.25
	9 - 10							50	2	218.50				50	2	218.50
	9 - 11							72	3	270.00				72	3	270.00
	9 - 12							35	3	157.25				35	3	157.25
	10 - 11							62	3	305.00				62	3	305.00
	10 - 12							39	2	185.25				39	2	185.25
	11 - 12							159	11	756.50				159	11	756.50
Total		138	7	617.50				1181	58	5510.25	112	5	616.00	1431	70	6743.75
Blue Print Reading	7							29	1	123.25				29	1	123.25
	10										46	2	172.50	46	2	172.50
Total								29	1	123.25	46	2	172.50	75	3	295.75
Architectural Drawing	11										14	1	77.00	14	1	77.00
	12							16	1	32.00				16	1	32.00
	9 - 12							24	1	78.00				24	1	78.00
Total								40	2	110.00	14	1	77.00	54	3	187.00
Machine Drafting & Drawing	N.R.							20	1	95.00				20	1	95.00
	11	32	1	152.00							17	1	93.50	49	2	245.50
Total		32	1	152.00				20	1	95.00	17	1	93.50	69	3	340.50
Graphic Arts	8	129	4	533.25				407	13	1640.25				536	17	2173.50
	9							127	5	577.25	20	1	110.00	147	6	687.25
	10										12	1	66.00	12	1	66.00
	11										14	1	77.00	14	1	77.00
Total		129	4	533.25				534	18	2217.50	46	3	253.00	709	25	3003.75
Printing & Print Design	8	34	1	144.50				146	5	578.50				180	6	723.00
	10	41	2	211.25				20	1	95.00				61	3	306.25
	11	12	1	66.00				41	2	194.75				53	3	260.75
	12	44	2	242.00				11	1	52.25				55	3	294.25
	8 - 9	34	1	144.50										34	1	144.50
	10 - 12	27	1	128.25										27	1	128.25
Total		192	8	936.50				218	9	920.50				410	17	1857.00

TABLE 22 - Continued

Courses	Grade Level	Advanced Degree Major-Minor S	C	H	Advanced Degree Neither S	C	H	Regular Degree Major-Minor S	C	H	Regular Degree Neither S	C	H	Total S	C	H
Auto Mechanics & Shop	10	23	1	109.25				24	1	114.00				47	2	223.25
	11	64	3	304.00				36	2	192.00				100	5	496.00
	12	8	1	44.00				96	5	473.25				104	6	517.25
	9 - 10							42	2	246.75				42	2	246.75
	9 - 12							146	5	693.50				146	5	693.50
	10 - 11							90	4	314.50				90	4	314.50
	10 - 12	161	8	711.50				44	2	267.50				205	10	979.00
	11 - 12	35	2	192.50				170	10	1168.00				205	12	1360.50
Total		291	15	1361.25				648	31	3469.50				939	46	4830.75
Auto Theory	12							34	1	161.50				34	1	161.50
Bump & Paint Shop - Auto Body	11 - 12							24	2	192.00				24	2	192.00
Industrial Mechanics	9							69	2	396.00				69	2	396.00
	10							60	2	211.00				60	2	211.00
	9 - 11							25	1	200.00				25	1	200.00
	9 - 12							33	1	214.50				33	1	214.50
	10 - 12							54	2	351.00				54	2	351.00
Total								241	8	1372.50				241	8	1372.50
Applied Physics	11	13	1	61.75										13	1	61.75
Shop Mathematics & Industrial Construction Mathematics	N.R.							25	1	93.75				25	1	93.75
	10	63	3	316.50				17	1	93.50				80	4	410.00
	11							15	1	71.25				15	1	71.25
	9 - 12							43	2	204.25				43	2	204.25
	10 - 11							8	1	44.00				8	1	44.00
	10 - 12							13	1	42.25				13	1	42.25
Total		63	3	316.50				121	7	549.00				184	10	865.50
Co-Op Training T & I	12	15	1	71.25				25	2	118.75				40	3	190.00
Misc.- (Industrial History, Related Social Science)	N.R.							25	1	93.75				25	1	93.75
Unknown or Unclassified	7							57	2	242.25				57	2	242.25

TABLE 23

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Advanced Degree

Courses*	Grade Level	Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	Major-Minor[2] 10 or more yrs. experience S	C	H	Neither[3] 5-10 yrs. experience S	C	H	Neither[3] 10 or more yrs experience S	C	H	Total S	C	H
Industrial Arts	N.R.[7]				93	4	406.25							93	4	406.25
	7	266	8	1248.50	34	1	161.50	72	2	342.00				372	11	1752.00
	8	682	29	2779.75	696	32	3800.50							1378	61	6580.25
	9	149	5	577.25	52	2	205.00				17	1	80.75	218	8	863.00
	10				76	3	277.00							76	3	277.00
	11				30	1	97.50							30	1	97.50
	12				47	2	250.50							47	2	250.50
	8 - 9				21	1	78.75							21	1	78.75
	9 - 10	50	2	325.00										50	2	325.00
	10 - 11	20	2	107.25										20	2	107.25
	10 - 12	53	2	250.25										53	2	250.25
Total		1220	48	5288.00	1049	46	5277.00	72	2	342.00	17	1	80.75	2358	97	10987.75
General Shop	N.R.				101	5	495.50				25	1	93.75	126	6	589.25
	7	74	3	343.25	84	3	357.00							158	6	700.25
	8	602	26	2854.75	484	20	2051.00				101	3	747.50	1187	49	5653.25
	9	374	19	1662.25	103	6	441.25							477	25	2103.50
	10	248	12	1318.25	107	5	493.75							355	17	1812.00
	11	10	1	55.00	48	3	193.00							58	4	248.00
	12				28	2	114.00							28	2	114.00
	7 - 8	180	9	765.00				120	6	510.00				300	15	1275.00
	9 - 10	30	2	131.75	177	7	935.00							207	9	1066.75
	10 - 11				28	1	154.00							28	1	154.00
	10 - 12				54	3	228.50							54	3	228.50
	11 - 12	54	3	229.00										54	3	229.00
Total		1572	75	7359.25	1214	55	5463.00	120	6	510.00	126	4	841.25	3032	140	14173.50
Wood Shop	N.R.	20	1	85.00	40	2	205.00				25	1	93.75	85	4	383.75
	7	94	3	446.50	335	13	1287.25							429	16	1733.75
	8	186	7	790.50	382	14	1624.00	50	3	259.25				618	24	2673.75
	9	64	3	272.00	457	16	1913.75	59	3	303.50	71	4	390.50	651	26	2879.75
	10	50	3	275.00	318	12	1340.25	33	2	165.00	48	2	816.00	449	19	2596.25
	11	5	1	27.50				28	1	133.00				33	2	160.50
	7 - 8	22	1	93.50										22	1	93.50
	7 - 9	28	2	119.00										28	2	119.00
	8 - 9				47	2	198.25							47	2	198.25
	9 - 11				56	2	364.00							56	2	364.00
	9 - 12				31	2	176.75							31	2	176.75
	10 - 12	182	9	818.25	370	15	1712.75							552	24	2531.00
	11 - 12				66	3	257.50							66	3	257.50
Total		651	30	2927.25	2102	81	9079.50	170	9	860.75	144	7	1300.25	3067	127	14167.75
Cabinet & Furniture Making	10	51	2	242.25										51	2	242.25
	11 - 12	21	1	168.00										21	1	168.00
Total		72	3	410.25										72	3	410.25
Machine Woodwork	10	13	1	48.75										13	1	48.75
Pattern Making	10				34	2	161.50							34	2	161.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 18 for Commercial Cooking, Baking, etc.; Cosmetology;and Hospital Service.

TABLE 23 - Continued

Advanced Degree

Courses	Grade Level	Major-Minor 5-10 yrs. experience S	C	H	Major-Minor 10 or more yrs. experience S	C	H	Neither 5-10 yrs. experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Carpentry (Building Construction)	10				28	1	182.00				63	2	308.75	91	3	490.75
	11	46	2	299.00	21	1	136.50							67	3	435.50
	12				20	1	65.00							20	1	65.00
	11 - 12										24	1	156.00	24	1	156.00
Total		46	2	299.00	69	3	383.50				87	3	464.75	202	8	1147.25
Building Materials	11				32	1	136.00							32	1	136.00
	10 - 12				15	1	63.75							15	1	63.75
Total					47	2	199.75							47	2	199.75
Residential Development	11 - 12				24	1	192.00							24	1	192.00
Metal Shop & Metal Fitting	N.R.	31	1	131.75	54	3	256.50							85	4	388.25
	8	225	9	913.75	338	12	1572.75							563	21	2486.50
	9	334	14	1464.50	984	35	4259.00							1318	49	5723.50
	10	59	3	311.75	143	5	656.50							202	8	968.25
	11	33	2	181.50										33	2	181.50
	8 - 9				26	1	123.50							26	1	123.50
	9 - 10	22	1	143.00										22	1	143.00
	9 - 11	21	1	136.50										21	1	136.50
	9 - 12	20	1	130.00	104	4	676.00							124	5	806.00
	10 - 11				35	1	227.50							35	1	227.50
	10 - 12	27	1	128.25	107	5	563.25							134	6	691.50
	11 - 12	39	2	214.50	32	2	176.00							71	4	390.50
Total		811	35	3755.50	1823	68	8511.00							2634	103	12266.50
Bench Metal	10				88	3	319.75							88	3	319.75
Sheet Metal	11 - 12				31	1	147.25							31	1	147.25
Machine Hand Tools	N.R.	13	1	48.75										13	1	48.75
Machine Shop	N.R.										25	1	93.75	25	1	93.75
	8							17	1	93.50				17	1	93.50
	9				27	1	175.50	42	2	231.00				69	3	406.50
	10	120	7	712.00	112	5	776.00	34	2	187.00				266	14	1675.00
	11	58	3	425.00	37	2	193.75							95	5	618.75
	12				32	2	152.00							32	2	152.00
	9 - 10	15	1	120.00										15	1	120.00
	9 - 11				26	1	169.00							26	1	169.00
	9 - 12	97	4	460.75	64	3	370.50							161	7	831.25
	10 - 11	22	1	143.00										22	1	143.00
	10 - 12	173	8	1162.50	355	15	2306.00							528	23	3468.50
	11 - 12	53	3	238.75	88	4	585.50							141	7	824.25
Total		538	27	3262.00	741	33	4728.25	93	5	511.50	25	1	93.75	1397	66	8595.50
Machine Metal Work	10 - 11	17	1	63.75										17	1	63.75
Machine Working	10 - 11	25	2	93.75										25	2	93.75
Power Machinery	9	98	5	416.50										98	5	416.50
	11 - 12				67	3	368.50							67	3	368.50
Total		98	5	416.50	67	3	368.50							165	8	785.00

TABLE 23 - Continued

Advanced Degree

Courses	Grade Level	Major-Minor 5-10 yrs. experience S	C	H	Major-Minor 10 or more yrs. experience S	C	H	Neither 5-10 yrs. experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Welding	N.R.										25	1	93.75	25	1	93.75
	11	30	3	206.00	20	1	130.00							50	4	336.00
	12				34	2	161.50							34	2	161.50
	8 - 11				24	1	192.00							24	1	192.00
	9 - 12				87	3	565.50							87	3	565.50
	10 - 12	20	1	95.00	123	7	559.25							143	8	654.25
	11 - 12	9	1	72.00										9	1	72.00
Total		59	5	373.00	288	14	1608.25				25	1	93.75	372	20	2075.00
Electricity	9							17	1	93.50				17	1	93.50
	10	49	2	232.75				40	2	220.00				89	4	452.75
	11	61	3	396.50	75	3	487.50	15	1	120.00				151	7	1004.00
	12	130	5	768.00										130	5	768.00
	9 - 11				28	1	224.00							28	1	224.00
	10 - 12	51	2	280.50	27	1	216.00							78	3	496.50
	11 - 12	32	2	223.50										32	2	223.50
Total		323	14	1901.25	130	5	927.50	72	4	433.50				525	23	3262.25
Radio Electronics	10 - 12				97	4	484.50							97	4	484.50
Electrical Mechanics	10	50	2	325.00	26	1	169.00							76	3	494.00
	11	22	1	143.00	17	1	110.50							37	2	253.50
	12				46	2	299.00							46	2	299.00
	10 - 11				52	1	416.00							52	1	416.00
Total		72	3	468.00	141	5	994.50							213	8	1462.50
Drafting	N.R.				20	1	85.00							20	1	85.00
	7	43	2	182.75										43	2	182.75
	8	295	9	1184.25	777	28	3508.25							1072	37	4692.50
	9	216	8	872.00	500	18	2082.25							716	26	2954.25
	10	287	12	1510.00	887	33	3227.25				76	3	247.00	1250	48	4984.25
	11	6	1	33.00	188	7	675.00				21	1	136.50	215	9	844.50
	12				371	15	1305.75				19	1	123.50	390	16	1429.25
	7 - 8	22	1	93.50										22	1	93.50
	7 - 9	27	1	114.75										27	1	114.75
	8 - 11				25	1	200.00							25	1	200.00
	9 - 10	53	2	215.75	36	1	117.00							89	3	332.75
	9 - 11				233	8	792.25							233	8	792.25
	9 - 12	141	5	659.25	294	10	957.50							435	15	1616.75
	10 - 11				132	5	485.00							132	5	485.00
	10 - 12	34	2	161.50	790	31	2972.50							824	33	3134.00
	11 - 12	102	5	476.00	324	13	1276.00							426	18	1752.00
Total		1226	48	5502.75	4577	171	17683.75				116	5	507.00	5919	224	23693.50
Mechanical Drawing	N.R.	12	1	57.00	38	3	209.00							50	4	266.00
	7	145	5	616.25										145	5	616.25
	8	48	2	216.50				117	5	643.50	13	1	61.75	178	8	921.75
	9	270	10	1213.50	61	3	228.75	69	3	379.50	26	2	123.50	426	18	1945.25
	10	172	9	775.00	113	4	364.50							285	13	1139.50
	11	13	1	61.75	41	2	140.25							54	3	202.00
	12	18	1	85.50										18	1	85.50
	8 - 11				49	2	183.75							49	2	183.75
	9 - 11	26	1	84.50										26	1	84.50
	9 - 12	34	1	110.50										34	1	110.50
	10 - 11				54	2	198.50							54	2	198.50
	10 - 12	79	3	375.25	173	6	838.25							252	9	1213.50
	11 - 12	90	5	401.50	37	2	175.75							127	7	577.25
Total		907	39	3997.25	566	24	2338.75	186	8	1023.00	39	3	185.25	1698	74	7544.25

TABLE 23 - Continued

Advanced Degree

Courses	Grade Level	Major-Minor: 5-10 yrs. experience S	C	H	Major-Minor: 10 or more yrs experience S	C	H	Neither: 5-10 yrs. experience S	C	H	Neither: 10 or more yrs experience S	C	H	Total S	C	H
Blue Print Reading	7	28	1	119.00										28	1	119.00
	11				20	1	75.00							20	1	75.00
	11 - 12				13	1	42.25							13	1	42.25
Total		28	1	119.00	33	2	117.25							61	3	236.25
Architectural Drawing	10	37	2	175.75				16	1	88.00				53	3	263.75
	11	15	1	71.25	45	2	211.25							60	3	282.50
	9 - 12	11	1	35.75										11	1	35.75
	10 - 12	51	2	240.50										51	2	240.50
	11 - 12	27	1	128.25	46	2	149.50							73	3	277.75
Total		141	7	651.50	91	4	360.75	16	1	88.00				248	12	1100.25
Machine Drafting & Drawing	10	79	3	375.25										79	3	375.25
	11	23	1	109.25										23	1	109.25
	12	75	3	356.25										75	3	356.25
Total		177	7	840.75										177	7	840.75
Graphic Arts	8	60	2	285.00	105	3	446.25	108	4	594.00	90	3	472.50	363	12	1797.75
	9				40	1	170.00	43	2	236.50	29	2	159.50	112	5	566.00
	10										20	1	110.00	20	1	110.00
	11							12	1	66.00				12	1	66.00
	10 - 12				24	1	114.00							24	1	114.00
	11 - 12				10	1	47.50							10	1	47.50
Total		60	2	285.00	179	6	777.75	163	7	896.50	139	6	742.00	541	21	2701.25
Printing & Print Design	N.R.				15	1	71.25							15	1	71.25
	8	78	2	350.50	161	5	699.75							239	7	1050.25
	10	98	4	399.75	45	2	198.25							143	6	598.00
	11	23	1	149.50	59	4	319.50							82	5	469.00
	12				42	3	240.50				11	1	88.00	53	4	328.50
	9 - 12				81	5	341.75							81	5	341.75
	10 - 12				121	7	589.00	48	5	264.00	61	5	343.25	230	17	1196.25
	11 - 12				280	15	1672.25							280	15	1672.25
Total		199	7	899.75	804	42	4132.25	48	5	264.00	72	6	431.25	1123	60	5727.25
Photography	10 - 12				15	1	71.25							15	1	71.25
Auto Mechanics & Shop	N.R.				29	1	159.50							29	1	159.50
	10	93	4	658.50	99	4	675.00							192	8	1333.50
	11	18	1	99.00	156	8	1082.25							174	9	1179.25
	12	32	2	146.25	43	2	224.50							75	4	370.75
	9 - 12	17	1	63.75	37	2	296.00							54	3	359.75
	10 - 12	302	14	1434.50										302	14	1434.50
	11 - 12	58	4	362.00	27	2	216.00							85	6	578.00
Total		520	26	2764.00	391	19	2653.25							911	45	5417.25
Industrial Mechanics	9				36	1	117.00							36	1	117.00
	10				82	3	307.00							82	3	307.00
	9 - 10	80	3	520.00										80	3	520.00
	9 - 11				24	1	156.00							24	1	156.00
	10 - 12	21	1	136.50										21	1	136.50
Total		101	4	656.50	142	5	580.00							243	9	1236.50
Power Plant	9				25	1	81.25							25	1	81.25
Air Conditioning & Refrigeration	10 - 12				16	1	104.00							16	1	104.00

TABLE 23 - Continued

Advanced Degree

Courses	Grade Level	Major-Minor 5-10 yrs. experience S	C	H	Major-Minor 10 or more yrs experience S	C	H	Neither 5-10 yrs. experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Astronautics	10	21	1	136.50	48	2	312.00							69	3	448.50
	11	32	2	104.00										32	2	104.00
	12	27	1	175.50										27	1	175.50
	11 - 12	30	1	195.00										30	1	195.00
Total		110	5	611.00	48	2	312.00							158	7	923.00
Aircraft Power Plant	11 - 12				28	1	224.00							28	1	224.00
Automation	12	23	1	184.00										23	1	184.00
Applied Physics	11	42	3	199.50	14	1	66.50							56	4	266.00
Shop Mathematics & Industrial Construction Mathematics	7	29	1	123.25										29	1	123.25
	9	24	1	102.00										24	1	102.00
	10	85	4	467.50	157	5	745.75							242	9	1213.25
	11				53	2	172.25							53	2	172.25
	8 - 11				24	1	90.00							24	1	90.00
	9 - 11	60	2	195.00										60	2	195.00
	9 - 12	28	1	133.00	126	4	428.50							154	5	561.50
	10 - 11	48	2	156.00	18	1	58.50							66	3	214.50
	10 - 12	31	1	147.25	125	5	464.75							156	6	612.00
	11 - 12				49	2	159.25							49	2	159.25
Total		305	12	1324.00	552	20	2119.00							857	32	3443.00
Co-Op Training - T & I	N.R.	15	1	120.00										15	1	120.00
	12				34	1	272.00							45	2	332.50
	10 - 12				26	3	123.50	11	1	60.50				26	3	123.50
Total		15	1	120.00	60	4	395.50	11	1	60.50				86	6	576.00
Misc. - (Industrial History, Related Social Science)	10				21	1	68.25							21	1	68.25
Unknown or Un-Classified	7				28	1	119.00							28	1	119.00
	9				17	1	80.75							17	1	80.75
Total					45	2	199.75							45	2	199.75

TABLE 23 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH PERMANENT CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Regular Degree

Courses*	Grade Level	Major-Minor[2] 5-10 yrs. experience S[4]	C[5]	H[6]	Major-Minor[2] 10 or more yrs. experience S	C	H	Neither[3] 5-10 yrs. experience S	C	H	Neither[3] 10 or more yrs experience S	C	H	Experience unknown S	C	H	Total S	C	H
Industrial Arts	7				114	4	369.25										114	4	369.25
	8	141	5	834.25	186	7	678.75										327	12	1513.00
	9	62	3	251.50													62	3	251.50
	8 - 9	32	1	152.00													32	1	152.00
	9 - 12	27	1	175.50													27	1	175.50
	10 - 12				28	1	91.00										28	1	91.00
Total		262	10	1413.25	328	12	1139.00										590	22	2552.25
General Shop	N.R.[7]	61	3	335.50	14	1	66.50										75	4	402.00
	7	274	11	1055.50	283	11	876.00										557	22	1931.50
	8	505	30	2173.50	695	30	3079.50										1200	60	5253.00
	9	427	21	2025.00	216	9	1046.50										643	30	3071.50
	10	65	4	308.75	26	2	131.00										91	6	439.75
	11	35	2	166.25	16	1	88.00										51	3	254.25
	12				25	2	137.50										25	2	137.50
	7 - 8	16	1	32.00	36	2	199.00										52	3	231.00
	7 - 9				48	2	215.50										48	2	215.50
	8 - 9	35	2	148.75	25	1	106.25										60	3	255.00
	9 - 10	17	1	80.75	33	3	144.75										50	4	225.50
	9 - 12	32	2	142.00													32	2	142.00
	10 - 11	59	3	280.25	5	1	18.75										64	4	299.00
	10 - 12	12	1	57.00													12	1	57.00
	11 - 12	33	4	152.75	46	4	250.00										79	8	402.75
Total		1571	85	6958.00	1468	69	6359.25										3039	154	13317.25
Wood Shop	N.R.	51	3	242.25													51	3	242.25
	7	20	1	85.00													20	1	85.00
	8	552	18	2228.00	59	2	311.50										611	20	2539.50
	9	136	5	555.00	55	3	230.75	88	4	484.00				28	1	154.00	307	13	1423.75
	10				91	4	443.50	21	1	115.50							112	5	559.00
	11				37	2	175.75	20	1	110.00							57	3	285.75
	12				31	2	147.25										31	2	147.25
	8 - 11				69	3	454.25										69	3	454.25
	9 - 10				24	1	156.00										24	1	156.00
	9 - 11				25	1	162.50										25	1	162.50
	9 - 12	150	7	712.50	23	1	149.50										173	8	862.00
	10 - 12				52	3	247.00										52	3	247.00
	11 - 12	14	1	77.00													14	1	77.00
Total		923	35	3899.75	466	22	2478.00	129	6	709.50				28	1	154.00	1546	64	7241.25
Bench Wood	9 - 11				30	2	240.00										30	2	240.00
Machine Woodwork	10	25	1	118.75													25	1	118.75
Pattern Making	10				52	3	247.00										52	3	247.00
	9 - 12				36	2	94.50										36	2	94.50
	10 - 12				15	1	120.00										15	1	120.00
Total					103	6	461.50										103	6	461.50

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 18 for Commercial Cooking, Baking, etc.; and Hospital Service.

TABLE 23 - Continued

Regular Degree

Courses	Grade Level	Major-Minor 5-10 yrs. experience S	C	H	Major-Minor 10 or more yrs experience S	C	H	Neither 5-10 yrs. experience S	C	H	Neither 10 or more yrs experience S	C	H	Experience unknown S	C	H	Total S	C	H
Carpentry	11				21	1	115.50										21	1	115.50
Metal Shop & Metal Fitting	N.R.	39	2	185.25													39	2	185.25
	7	140	6	770.00													140	6	770.00
	8	252	11	945.00	23	1	57.50										275	12	1002.50
	9	233	9	990.25	17	1	42.50				24	1	132.00				274	11	1164.75
	10	118	5	515.50	48	2	192.00				24	1	132.00				190	8	839.50
	7 - 9	42	2	178.50													42	2	178.50
	11 - 12	83	4	445.25													83	4	445.25
Total		907	39	4029.75	88	4	292.00				48	2	264.00				1043	45	4585.75
Machine Hand Tools	10				23	1	109.25										23	1	109.25
Machine Shop	9										71	3	390.50				71	3	390.50
	10				80	3	380.00				21	1	115.50				101	4	495.50
	11				24	1	114.00				21	1	115.50				45	2	229.50
	10 - 11				23	1	109.25										23	1	109.25
	11 - 12				28	2	224.00										28	2	224.00
Total					155	7	827.25				113	5	621.50				268	12	1448.75
Power Machinery	11				40	3	190.00										40	3	190.00
	11 - 12	39	2	214.50													39	2	214.50
Total		39	2	214.50	40	3	190.00										79	5	404.50
Welding	10	15	1	48.75													15	1	48.75
	12				46	2	218.50										46	2	218.50
	9 - 12				51	3	242.25										51	3	242.25
	10 - 12	27	1	101.25	45	2	213.75										72	3	315.00
	11 - 12				68	4	323.00										68	4	323.00
Total		42	2	150.00	210	11	997.50										252	13	1147.50
Electricity	10	20	1	130.00													20	1	130.00
	10 - 12	26	1	169.00													26	1	169.00
	11 - 12	22	1	143.00	37	3	195.25										59	4	338.25
Total		68	3	442.00	37	3	195.25										105	6	637.25
Electrical Mechanics	10				13	1	84.50										13	1	84.50
	11				22	1	143.00										22	1	143.00
	10 - 12							25	1	200.00	19	1	152.00				44	2	352.00
	11 - 12				21	1	136.50										21	1	136.50
Total					56	3	364.00	25	1	200.00	19	1	152.00				100	5	716.00
Drafting	7	17	1	72.25													17	1	72.25
	8	193	7	784.25	127	5	632.50										320	12	1416.75
	9	314	10	1353.50	130	5	503.50				52	2	169.00				496	17	2026.00
	10	70	3	322.00	16	1	76.00										86	4	398.00
	11	50	2	217.75	20	1	130.00										70	3	347.75
	12	44	2	159.00	30	1	195.00										74	3	354.00
	8 - 9	25	1	118.75													25	1	118.75
	9 - 10	20	1	65.00	89	3	289.25										109	4	354.25
	9 - 11				35	2	172.25										35	2	172.25
	9 - 12	15	1	71.25	137	4	650.75										152	5	722.00
	10 - 12				45	2	146.25										45	2	146.25
	11 - 12	14	1	77.00	45	2	213.75										59	3	290.75
Total		762	29	3240.75	674	26	3009.25				52	2	169.00				1488	57	6419.00

TABLE 23 - Continued

Regular Degree

Courses	Grade Level	Major-Minor 5-10 yrs. experience S	C	H	Major-Minor 10 or more yrs experience S	C	H	Neither 5-10 yrs. experience S	C	H	Neither 10 or more yr experience S	C	H	Experience unknown S	C	H	Total S	C	H
Mechanical Drawing	N.R.	41	3	194.75													41	3	194.75
	7				21	1	99.75										21	1	99.75
	8	73	3	346.75	18	1	85.50	82	3	428.50				24	1	132.00	197	8	992.75
	9	30	2	142.50	40	2	190.00	26	1	143.00				12	1	51.00	108	6	526.50
	10				158	8	776.00	22	1	121.00							180	9	897.00
	11	28	1	91.00	72	4	342.00	31	1	170.50							131	6	603.50
	12				14	2	59.50										14	2	59.50
	9 - 11	122	4	671.00													122	4	671.00
	10 - 11	28	1	133.00													28	1	133.00
	10 - 12	64	4	285.00													64	4	285.00
	11 - 12	52	2	271.00	23	2	117.50										75	4	388.50
Total		438	20	2135.00	346	20	1670.25	161	6	863.00				36	2	183.00	981	48	4851.25
Blue Print Reading	10				25	1	81.25										25	1	81.25
Architectural Drawing	11	42	2	199.50													42	2	199.50
	11 - 12				25	1	118.75										25	1	118.75
Total		42	2	199.50	25	1	118.75										67	3	318.25
Machine Drafting & Drawing	11 - 12				13	1	104.00										13	1	104.00
Tool Design	12	18	1	117.00													18	1	117.00
Graphic Arts	8				132	5	561.00				65	3	332.75				197	8	893.75
	9										44	2	225.50				44	2	225.50
	11										29	2	143.00				29	2	143.00
	8 - 9	63	2	281.25													63	2	281.25
Total		63	2	281.25	132	5	561.00				138	7	701.25				333	14	1543.50
Printing & Print Design	N.R.	45	3	213.75	12	1	57.00										57	4	270.75
	8	53	2	225.25													53	2	225.25
	9	11	1	46.75	64	4	262.25										75	5	309.00
	10				88	4	473.50										88	4	473.50
	11				33	2	181.50										33	2	181.50
Total		109	6	485.75	197	11	974.25										306	17	1460.00
Auto Mechanics & Shop	10	77	4	453.00													77	4	453.00
	11	34	2	237.50													34	2	237.50
	12	19	1	123.50	108	4	513.00										127	5	636.50
	10 - 12	25	1	118.75													25	1	118.75
	11 - 12	133	8	674.00	14	1	112.00										147	9	786.00
Total		288	16	1606.75	122	5	625.00										410	21	2231.75
Industrial Mechanics	10 - 12				83	3	253.25										83	3	253.25
	11 - 12				24	1	78.00										24	1	78.00
Total					107	4	331.25										107	4	331.25
Power Plant	12	6	1	22.50													6	1	22.50
	10 - 12	43	2	344.00													43	2	344.00
Total		49	3	366.50													49	3	366.50
Industrial Hydraulics	11	77	3	500.50													77	3	500.50
Air Frame	12	5	1	18.75													5	1	18.75
	10 - 12	21	1	168.00													21	1	168.00
Total		26	2	186.75													26	2	186.75
Shop Mathematics & Industrial Construction Mathematics	N.R.	15	1	71.25													15	1	71.25
	10	26	1	84.50													26	1	84.50
Total		41	2	155.75													41	2	155.75
Unknown or Un-Classified	8	16	1	76.00													16	1	76.00

TABLE 24

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61[1]

Courses*	Grade Level	Advanced Degree: Major-Minor[2] Less than 5 yrs experience S[4]	C[5]	H[6]	Advanced Degree: Neither[3] 10 or more yrs experience S	C	H	Regular Degree: Major-Minor Less than 5yr experience S	C	H	Major-Minor 5-10 yrs experience S	C	H	Neither 10 or more yrs experience S	C	H	Total S	C	H
Industrial Arts	7	123	4	307.50													123	4	307.50
	8				138	5	655.50										208	7	921.00
	9				82	3	389.50										100	4	475.00
	8 - 9																20	1	50.00
Total		123	4	307.50	220	8	1045.00										451	16	1753.50
General Shop	N.R.[7]																33	2	156.75
	7	34	1	161.50													53	2	209.00
	8	167	9	691.75													355	18	1527.75
	9	172	9	759.50													685	36	3123.75
	10	49	3	222.75							18	1	85.50				111	8	533.25
	11	17	1	80.75							15	1	71.25				31	2	147.25
	12	23	2	109.25													23	2	109.25
	9 - 10																28	2	99.25
	10 - 11																49	3	252.25
	10 - 12																116	6	521.50
	11 - 12																160	10	791.75
Total		462	25	2025.50							33	2	156.75				1644	91	7471.75
Wood Shop	7																57	2	242.25
	8	53	2	222.75													357	14	1537.25
	9	102	4	382.25	29	2	159.50										323	14	1438.00
	10	88	3	467.00													375	16	1869.25
	11				12	1	66.00										90	5	488.00
	12																34	3	161.50
	9 - 12	26	1	97.50													26	1	97.50
	10 - 11	21	1	78.75													21	1	78.75
	10 - 12	94	3	446.50													293	11	1390.00
	11 - 12	117	5	537.75													188	9	898.25
Total		501	19	2232.50	41	3	225.50										1764	76	8200.75
Metal Shop & Metal Fitting	8																50	3	212.50
	9	36	2	135.00													100	4	407.00
	10	151	6	611.50													263	11	1182.00
	10 - 11	54	2	202.50													54	2	202.50
	10 - 12																75	3	356.25
	11 - 12																22	1	104.50
Total		241	10	949.00													564	24	2464.75
Machine Hand Tools	10																38	2	180.50
	12	20	1	75.00													20	1	75.00
Total		20	1	75.00													58	3	255.50
Machine Shop	8				12	1	66.00										12	1	66.00
	9	144	5	619.50	18	1	99.00										210	8	982.50
	10	148	6	903.75	10	1	55.00										207	9	1228.25
	11	58	3	308.75													85	4	457.25
	12	55	3	261.25													55	3	261.25
	9 - 12	73	3	346.75													73	3	346.75
	10 - 12	59	3	280.25													59	3	280.25
	11 - 12	200	11	1099.00													371	19	2239.50
Total		737	34	3819.25	40	3	220.00	40	2	320.00	131	6	820.50	124	5	682.00	1072	50	5861.75

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

*Note: See Table 19 for Commercial Cooking, Baking, etc.

TABLE 24 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor, Less than 5yrs experience S	C	H	Advanced Degree: Neither, 10 or more yrs experience S	C	H	Regular Degree: Major-Minor, Less than 5yrs experience S	C	H	Regular Degree: Major-Minor, 5-10 yrs experience S	C	H	Regular Degree: Major-Minor, 10 or more yrs experience S	C	H	Regular Degree: Neither, 10 or more yrs experience S	C	H	Total S	C	H
Power Machinery	N.R.													15	1	71.25				15	1	71.25
	9	22	1	93.50										18	1	76.50				40	2	170.00
	10 - 12	26	1	123.50																26	1	123.50
	11 - 12	17	1	63.75																17	1	63.75
Total		65	3	280.75										33	2	147.75				98	5	428.50
Welding	10 - 12	73	3	473.50																73	3	473.50
	11 - 12													37	2	175.75				37	2	175.75
Total		73	3	473.50										37	2	175.75				110	5	649.25
Electricity	9	32	2	128.00																32	2	128.00
	10	66	2	413.25																66	2	413.25
	11	27	1	216.00																27	1	216.00
	12	59	1	221.25										21	1	99.75				80	2	321.00
	10 - 12	107	4	508.25	67	3	318.25													174	7	826.50
	11 - 12	46	2	218.50	38	2	180.50							21	1	99.75				105	5	498.75
Total		337	12	1705.25	105	5	498.75							42	2	199.50				484	19	2403.50
Radio Electronics	9 - 12													56	2	266.00				56	2	266.00
Drafting	N.R.													15	1	56.25				15	1	56.25
	7	15	1	37.50										78	3	331.50				93	4	369.00
	8	123	5	553.75										248	9	1102.00				371	14	1655.75
	9	260	10	1081.50	86	3	408.50							354	15	1549.50				700	28	3039.50
	10	269	11	1141.25	116	4	377.00							315	13	1135.50				700	28	2653.75
	11	46	3	203.50										114	4	348.75				160	7	552.25
	12	61	3	356.50										46	2	149.50				107	5	506.00
	8 - 9	28	1	119.00																28	1	119.00
	9 - 10	33	1	107.25																33	1	107.25
	9 - 12	141	5	669.75										188	6	729.00				329	11	1398.75
	10 - 11	54	2	297.00																54	2	297.00
	10 - 12	408	17	1889.25																408	17	1889.25
	11 - 12	169	8	870.50										20	1	95.00				189	9	965.50
Total		1607	67	7326.75	202	7	785.50							1378	54	5497.00				3187	128	13609.25
Mechanical Drawing	8																45	2	226.50	45	2	226.50
	9	28	1	133.00										67	3	321.00	73	4	383.50	168	8	837.50
	10	146	6	574.50				165	6	783.75				36	2	142.00	201	8	969.00	548	22	2469.25
	11													33	1	156.75	86	4	418.25	119	5	575.00
	12													20	1	95.00				20	1	95.00
	10 - 11													24	1	114.00				24	1	114.00
	10 - 12													14	1	52.50	38	2	180.50	52	3	233.00
	11 - 12	46	2	172.50										94	6	425.25	28	1	133.00	168	9	730.75
Total		220	9	880.00				165	6	783.75				288	15	1306.50	471	21	2310.75	1144	51	5281.00
Blue Print Reading	7													55	2	233.75				55	2	233.75
	10				20	1	65.00													20	1	65.00
Total					20	1	65.00							55	2	233.75				75	3	298.75
Architectural Drawing	10	74	3	315.50										29	1	137.75				103	4	453.25
	11	40	2	190.00																40	2	190.00
	12													16	1	76.00				16	1	76.00
	9 - 12	25	1	118.75																25	1	118.75
	11 - 12																31	1	147.25	31	1	147.25
Total		139	6	624.25										45	2	213.75	31	1	147.25	215	9	985.25

TABLE 24 - Continued

Courses	Grade Level	Advanced Degree: Major-Minor, Less than 5yrs experience S	C	H	Advanced Degree: Major-Minor, 10 or more yrs experience S	C	H	Advanced Degree: Neither, 10 or more yrs experience S	C	H	Regular Degree: Major-Minor, Less than 5yrs experience S	C	H	Regular Degree: Major-Minor, 5-10 yrs experience S	C	H	Regular Degree: Major-Minor, 10 or more yrs experience S	C	H	Regular Degree: Neither, 10 or more yrs experience S	C	H	Total S	C	H
Machine Drafting & Drawing	10																								
	11	30	1	142.50	22	1	55.00										86	3	360.50				86	3	360.50
	12																						52	2	197.50
Total		30	1	142.50	22	1	55.00										17	1	80.75				17	1	80.75
																	103	4	441.25				155	6	638.75
Tool Design	11 - 12																20	1	160.00				20	1	160.00
Graphic Arts	8	132	4	561.00																62	2	341.00	194	6	902.00
Printing & Print Design	N.R.	15	1	71.25																			15	1	71.25
	7	158	7	615.50													107	3	454.75				265	10	1070.25
	8	147	5	751.75																			147	5	751.75
	9	116	5	493.00																			116	5	493.00
	10	40	2	190.00													85	6	427.00				125	8	617.00
	11	24	1	114.00																			24	1	114.00
	12	16	1	76.00																			16	1	76.00
	7 - 8	20	1	50.00																			20	1	50.00
	8 - 9	13	1	55.25																			48	3	204.00
	9 - 12	86	6	460.50													35	2	148.75				86	6	460.50
	10 - 11	16	1	76.00																			16	1	76.00
	10 - 12	244	11	1211.50													19	1	90.25				263	12	1301.75
	11 - 12																71	6	529.00				71	6	529.00
Total		895	42	4164.75													317	18	1649.75				1212	60	5814.50
Auto Mechanics & Shop	N.R.																								
	10	82	3	389.50																20	1	160.00	20	1	160.00
	12																			47	2	223.25	129	5	612.75
	10 - 12	14	1	66.50													56	3	398.00				56	3	398.00
	11 - 12	20	1	95.00																			14	1	66.50
Total		116	5	551.00													20	1	110.00				40	2	205.00
																	76	4	508.00	67	3	383.25	259	12	1442.25
Bump & Paint Shop - Auto Body	9 - 12	18	1	67.50																			18	1	67.50
	10 - 12	22	1	82.50																			22	1	82.50
Total		40	2	150.00																			40	2	150.00
Industrial Mechanics	9	114	4	370.50																			114	4	370.50
	10 - 12	29	1	94.25																			29	1	94.25
Total		143	5	464.75																			143	5	464.75
Shop Mathematics & Industrial Construction Mathematics	7																								
	9																26	1	110.50				26	1	110.50
	10	354	14	1493.00													69	2	292.50				69	2	292.50
Total		354	14	1493.00													45	2	213.75				399	16	1706.75
																	140	5	616.75				494	19	2109.75
Co-Op Training T & I	N.R.	15	1	120.00																			15	1	120.00
	12	44	2	352.00																			44	2	352.00
Total		59	3	472.00																			59	3	472.00
Unknown or Unclassified	12	11	1	52.25																			11	1	52.25

TABLE 24 - Continued

EDUCATIONAL BACKGROUND OF TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH LIFE CERTIFICATES ACCORDING TO YEARS OF EXPERIENCE, NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Non Degree

Courses	Grade Level	Major-Minor[2] Less than 5yr experience S[4] C[5] H[6]	Major-Minor[2] 5-10 yrs experience S C H	Neither[3] 10 or more yrs experience S C H	Total S C H
Industrial Arts	8		86 2 688.00		86 2 688.00
General Shop	N.R.[7]		32 1 152.00		32 1 152.00
	8		16 1 88.00		16 1 88.00
	9		61 4 311.75		61 4 311.75
	10		19 2 95.50		19 2 95.50
	11 - 12		10 1 37.50		10 1 37.50
Total			138 9 684.75		138 9 684.75
Machine Shop	8 - 11		70 3 462.25		70 3 462.25
	9 - 12		30 2 240.00		30 2 240.00
Total			100 5 702.25		100 5 702.25
Drafting	9		14 1 59.50		14 1 59.50
	11		24 1 114.00		24 1 114.00
	10 - 11		91 3 432.25		91 3 432.25
	10 - 12			149 6 598.75	149 6 598.75
	11 - 12		29 1 137.75		29 1 137.75
Total			158 6 743.50	149 6 598.75	307 12 1342.25
Mechanical Drawing	8		27 1 101.25		27 1 101.25
	9		43 2 161.25		43 2 161.25
	11 - 12	46 4 172.50	19 1 104.50		65 5 277.00
Total		46 4 172.50	89 4 367.00		135 8 539.50
Printing & Print Design	N.R.		25 2 118.75		25 2 118.75
	11		60 3 285.00		60 3 285.00
Total			85 5 403.75		85 5 403.75
Shop Mathematics & Industrial Construction Mathematics	N.R.		15 1 71.25		15 1 71.25

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Includes teachers who are instructing in subject areas in which they hold a major or minor.

[3]Includes teachers who are instructing classes in subject areas in which they do not hold a major or minor.

[4]Students.

[5]Classes.

[6]Hours.

[7]Grade level not reported.

TABLE 25

TEACHERS OF TRADE AND INDUSTRIAL COURSES IN MICHIGAN K-12 SCHOOLS FOR GRADES 7-12 WITH YEARS OF EXPERIENCE AND EDUCATIONAL BACKGROUND UNREPORTED ACCORDING TO NUMBER OF STUDENTS ENROLLED, NUMBER OF CLASSES, AND TOTAL STUDENT HOURS PER WEEK, 1960-61.[1]

Grade Level

Courses	Unknown[2]			7			8			9			10			11		
	S[3]	C[4]	H[5]	S	C	H	S	C	H	S	C	H	S	C	H	S	C	H
Industrial Arts	352	16	1490.50	861	36	3531.00	1511	72	6185.50	1312	62	6064.25	669	33	3247.00	488	25	2466.00
General Shop	2943	153	14367.00	2464	115	10549.75	4581	220	19550.25	6676	329	31919.75	2074	114	10000.25	665	41	3091.00
Wood Shop	1996	94	10144.25	255	13	1224.75	338	15	1513.50	730	35	3347.75	984	49	4792.75	398	21	1922.00
Cabinet & Furniture Making	8	1	38.00													16	1	76.00
Machine Woodwork	74	5	313.50										8	1	34.00	35	2	166.25
Carpentry (Building Construction)	39	3	185.25															
Metal Shop & Metal Fitting	1250	69	6527.25	168	8	924.00	282	13	1294.25	312	15	1472.75	485	23	2267.75	284	15	1374.50
Bench Metal													22	1	104.50			
Sheet Metal	23	1	126.50															
Machine Shop	850	51	4768.75							79	4	375.25	191	9	962.75	317	14	1544.00
Machine Metal Work																		
Machine Working	90	6	427.50															
Power Machinery	151	9	734.50															
Welding	393	20	1853.75										15	1	71.25	72	4	377.50
Electricity	81	4	384.75															
Radio Electronics	43	3	190.25	19	1	80.75	36	2	153.00	20	1	110.00	56	4	266.00			
										22	1	104.50						
Drafting	1383	60	6755.25	315	15	1454.25	421	18	1959.00	643	29	2914.75	572	26	2629.50	345	16	1606.75
Mechanical Drawing	3014	139	14653.25	326	16	1432.75	538	22	2311.50	1403	63	6262.75	1178	59	5549.25	630	33	2989.00
Blue Print Reading	155	7	784.00							53	2	251.75	16	1	76.00			
Architectural Drawing	170	11	901.00							19	1	90.25	28	2	133.00	53	3	251.75
Machine Drafting & Drawing	80	4	410.00													12	1	57.00
Graphic Arts													45	3	213.75	12	1	57.00
Printing & Print Design	407	22	1911.75				77	3	327.25				88	6	438.25	34	2	172.00
Auto Mechanics & Shop	648	48	3347.50										189	10	897.75	484	22	2390.50
Auto Theory	36	2	153.00															
Industrial Mechanics																		
Plastics	57	3	270.75				40	2	190.00									
Shop Mathematics & Industrial Construction Mathematics	333	13	1601.50							82	4	339.50	482	19	2212.25	65	2	243.75
Co-Op Training - T & I	110	9	636.25															
Unknown or Unclassified	92	4	437.00															
Total	14778	757	73413.00	4408	204	19197.25	7824	367	33484.25	11351	546	53253.25	7102	361	33896.00	3910	203	18785.00

[1]Student hours were computed by multiplying total number of students enrolled by mean hours per week for each course offered.

[2]Grade level not reported.

[3]Students.

[4]Classes.

[5]Hours.

Note: See Table for Commercial Cooking, Baking, etc.; Cosmetology; and Hospital Service.

TABLE 25 - Continued

Grade Level

Courses	12 S	12 C	12 H	7-8 S	7-8 C	7-8 H	7&9 S	7&9 C	7&9 H	8-9 S	8-9 C	8-9 H	9-10 S	9-10 C	9-10 H	9-11 S	9-11 C	9-11 H	9-12 S	9-12 C	9-12 H
Industrial Arts	185	11	1009.00	101	3	474.25							19	2	90.25	17	1	80.75	20	1	95.00
General Shop	449	30	2077.00	839	37	3795.25	45	2	213.75	70	2	332.50	527	28	2536.25				461	22	2203.00
Wood Shop	56	3	281.00							143	6	651.75	42	2	215.25	94	4	521.25	357	19	1645.25
Cabinet & Furniture Making																					
Machine Woodwork																					
Carpentry (Building Construction)	57	3	339.00																		
Metal Shop & Metal Fitting	105	6	513.00	20	1	95.00				81	3	344.25	59	3	280.25	55	3	316.50	176	8	836.00
Bench Metal																					
Sheet Metal																					
Machine Shop	190	10	978.00										22	1	104.50				136	10	613.00
Machine Metal Work	60	3	52.00																		
Machine Working																					
Power Machinery	224	10	1054.25																		
Welding	14	1	66.50																		
Electricity	30	2	135.50																		
Radio Electronics																					
Drafting	216	13	1013.50				24	1	114.00	170	5	728.00	93	5	381.75	150	6	787.25	349	18	1608.75
Mechanical Drawing	249	16	1153.75	64	3	261.50							115	5	546.25				448	20	2104.00
Blue Print Reading	52	2	237.00																		
Architectural Drawing	31	2	159.25																23	1	109.25
Machine Drafting & Drawing	9	1	42.75																		
Graphic Arts																					
Printing & Print Design	35	3	177.50																105	8	498.75
Auto Mechanics & Shop	358	19	1801.50										86	4	473.00				130	7	609.50
Auto Theory																					
Industrial Mechanics	43	2	292.00																		
Plastics																					
Shop Mathematics & Industrial Construction Mathematics	18	1	85.50													19	1	152.00	104	5	491.50
Co-Op Training - T & I	34	3	180.25																		
Unknown or Unclassified																					
Total	2415	141	11648.25	1024	44	4626.00	69	3	327.75	464	16	2056.50	963	50	4627.50	335	15	1857.75	2309	119	10814.00

TABLE 25 - Continued

Grade Level

Courses	10-11 S	10-11 C	10-11 H	10-12 S	10-12 C	10-12 H	11-12 S	11-12 C	11-12 H	Total S	Total C	Total H
Industrial Arts	29	1	137.75	126	5	598.50	276	15	1311.75	5966	283	26781.50
General Shop	335	19	1635.00	751	43	3497.75	1271	69	5749.00	24151	1224	111517.50
Wood Shop	117	6	555.75	524	28	2519.50	433	24	2115.50	6467	319	31450.25
Cabinet & Furniture Making				47	2	223.25	72	4	334.00	143	8	671.25
Machine Woodwork										117	8	513.75
Carpentry (Building Construction)							15	1	82.50	111	7	606.75
Metal Shop & Metal Fitting	73	3	346.75	490	27	2277.00	320	18	1455.00	4160	215	20324.25
Bench Metal										22	1	104.50
Sheet Metal										23	1	126.50
Machine Shop	187	8	993.75	149	8	746.00	274	14	1497.25	2395	129	12583.25
Machine Metal Work										60	3	52.00
Machine Working							35	2	192.50	125	8	620.00
Power Machinery	52	2	221.00	25	2	118.75	47	2	223.25	586	30	2800.50
Welding							58	3	307.00	465	24	2227.25
Electricity	97	4	630.50	79	4	364.75	125	7	575.50	488	26	2467.00
Radio Electronics							42	3	178.50	162	10	707.00
Drafting	220	10	1031.25	541	25	2482.00	753	37	3646.00	6195	284	29112.00
Mechanical Drawing	346	18	1637.00	940	51	4435.25	1444	88	6782.75	10695	533	50119.00
Blue Print Reading	22	1	121.00	68	3	374.00				366	16	1843.75
Architectural Drawing				18	1	85.50	99	7	488.25	441	28	2218.25
Machine Drafting & Drawing							42	2	212.25	143	8	722.00
Graphic Arts							12	1	57.00	69	5	327.75
Printing & Print Design				170	9	739.50	84	6	376.00	1000	59	4641.00
Auto Mechanics & Shop				430	22	2149.75	299	15	1518.00	2624	147	13187.50
Auto Theory										36	2	153.00
Industrial Mechanics										43	2	292.00
Plastics										97	5	460.75
Shop Mathematics & Industrial Construction Mathematics	25	1	118.75	235	8	1090.75	98	4	439.00	1461	58	6774.50
Co-Op Training - T & I							51	2	343.00	195	14	1159.50
Unknown or Unclassified							45	3	213.75	137	7	650.75
Total	1503	73	7428.50	4593	238	21702.25	5895	327	28097.75	68943	3464	325215.00

Appendix C

METHODOLOGY

In order

Appendix C

METHODOLOGY

The original data on vocational curricula and on teacher education and experience were gathered in cooperation with the General Education Division of the Department of Public Instruction, using the Self-Survey Supplements I and II, 1960-61, part of the Self-Survey for Instructional Progress required of all school districts approved by the Superintendent of Public Instruction for the collection of tuition. Those school districts which were not required to fill in these forms were contacted and requests were made of them to provide us with the same information for purposes of our research. The returns from these school districts was one hundred per cent, making our research much more valid since these school districts represent the large city systems.

The data so gathered was coded, punched onto IBM cards, and processed, providing the materials found in Appendix B and the basis for our discussion of curriculum in the body of the report. Since the data provided the Department of Public Instruction was not specifically directed to our research, some materials needed for our analyses were incomplete. In the total curricula listed in Appendix B, we estimated the number of students and the hours taught for many school districts, basing our estimate on the mean number of students, and hours for the particular grade, curriculum, and course. We made no estimates for teacher experience since this was not necessary for our purposes.

In the analysis of the curricula by counties we felt that it would be more accurate to omit those school districts which did not provide complete enough returns. The school districts omitted are found in Table 1.

The data on curricula could not have been gathered and processed without the generous help of persons in the Department of Public Instruction. Of especially assistance were Leon J. Alger, Ferris N. Crawford, David C. Fitch, and Robert M. Winger.

Several decisions had to be made concerning curricular analysis. After long discussion with members of the Executive Committee it was decided not to separate office education from distributive because of inherent difficulties in classification involved in the data. While we recognize the importance of home economics to the educational process, we felt that its value was less in the vocational field as such than in the field of general education. As a result, many of our analyses dealt only with agriculture, business, and trade and industry. In a similar fashion, counseling data which was originally gathered as part of our research design was omitted because of the inadequacy of defining hours, number of students, or even grade levels at which counseling is offered.

Another problem concerned the distinction between industrial arts and vocational education. Here again, the Executive Committee suggested that no attempt be made to distinguish between these types of courses. In our analysis we did omit courses offered at the pre-high school level as being essentially industrial arts.

The labor market data and the projections for Michigan were based almost exclusively on the census materials for Michigan. Most of the techniques used are described in the body of the report. The demographic data is almost exclusively derived from Dr. Thaden's study of Michigan census materials and saved the project a great deal of time, effort, and money.